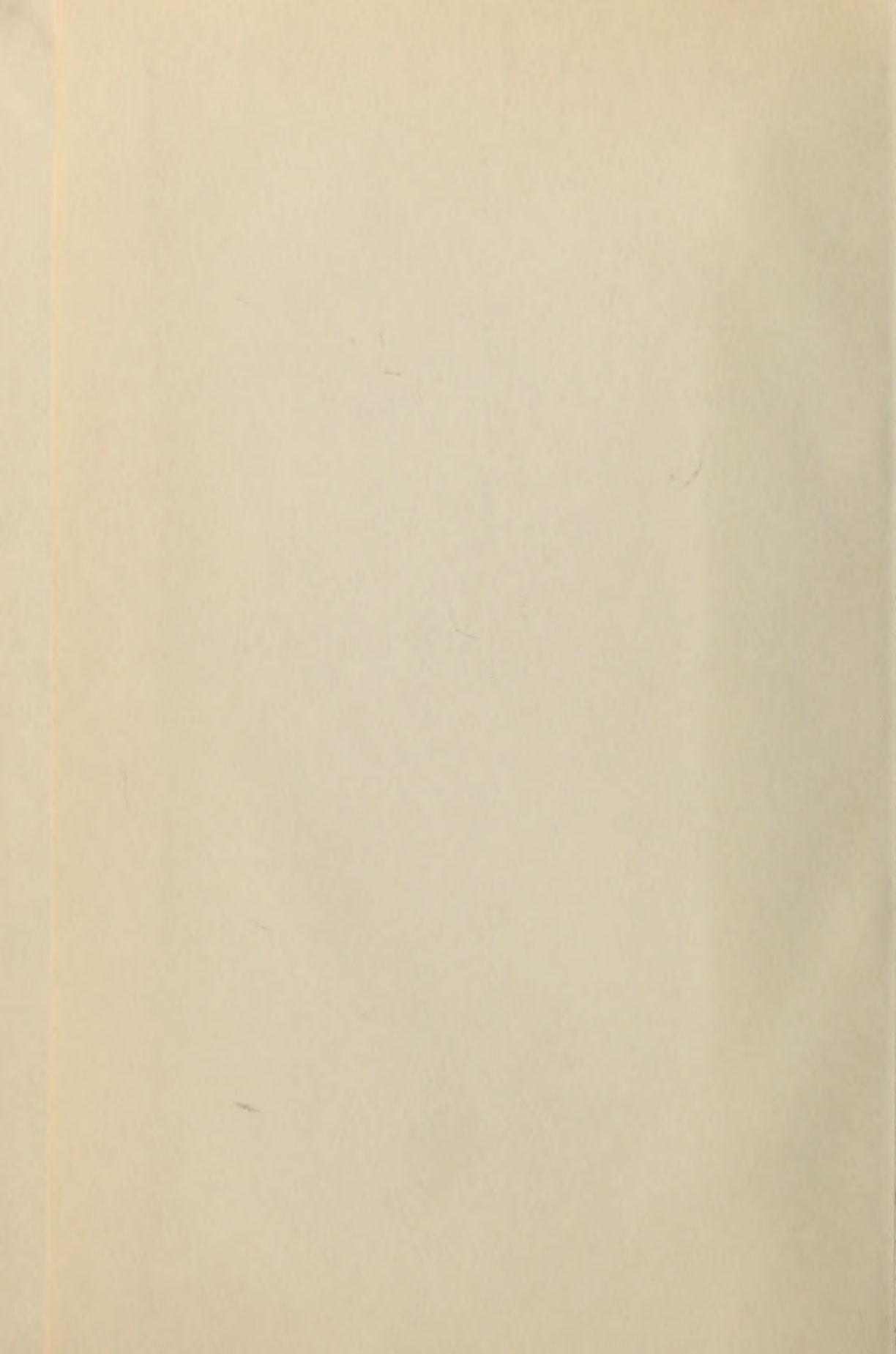



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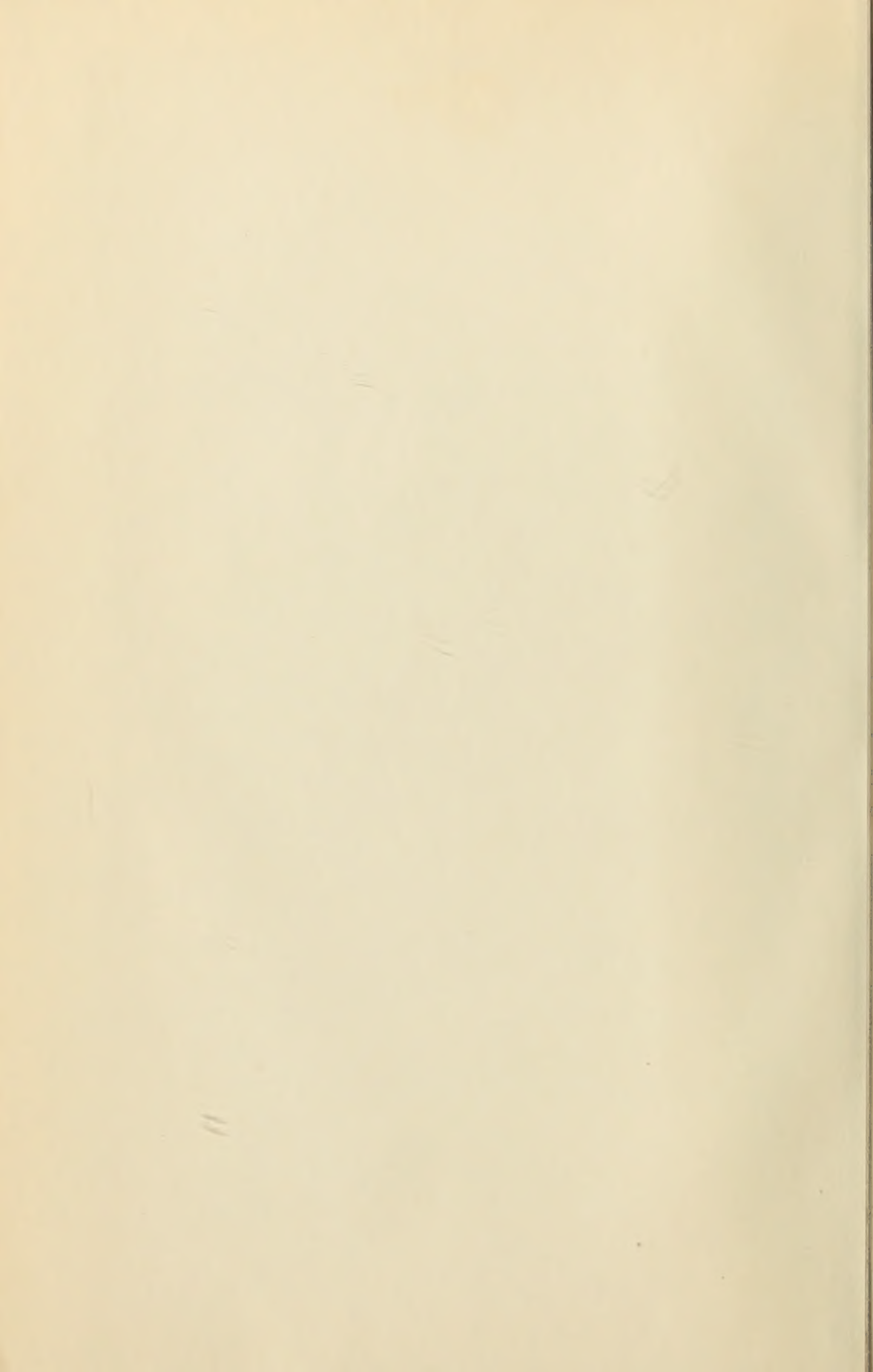
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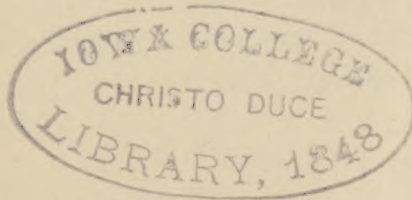
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THE
INTERNATIONAL
MONTHLY

A Magazine of Contemporary Thought.

VOLUME III.
JANUARY-JUNE, 1901.



BURLINGTON, VERMONT,
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CONTENTS

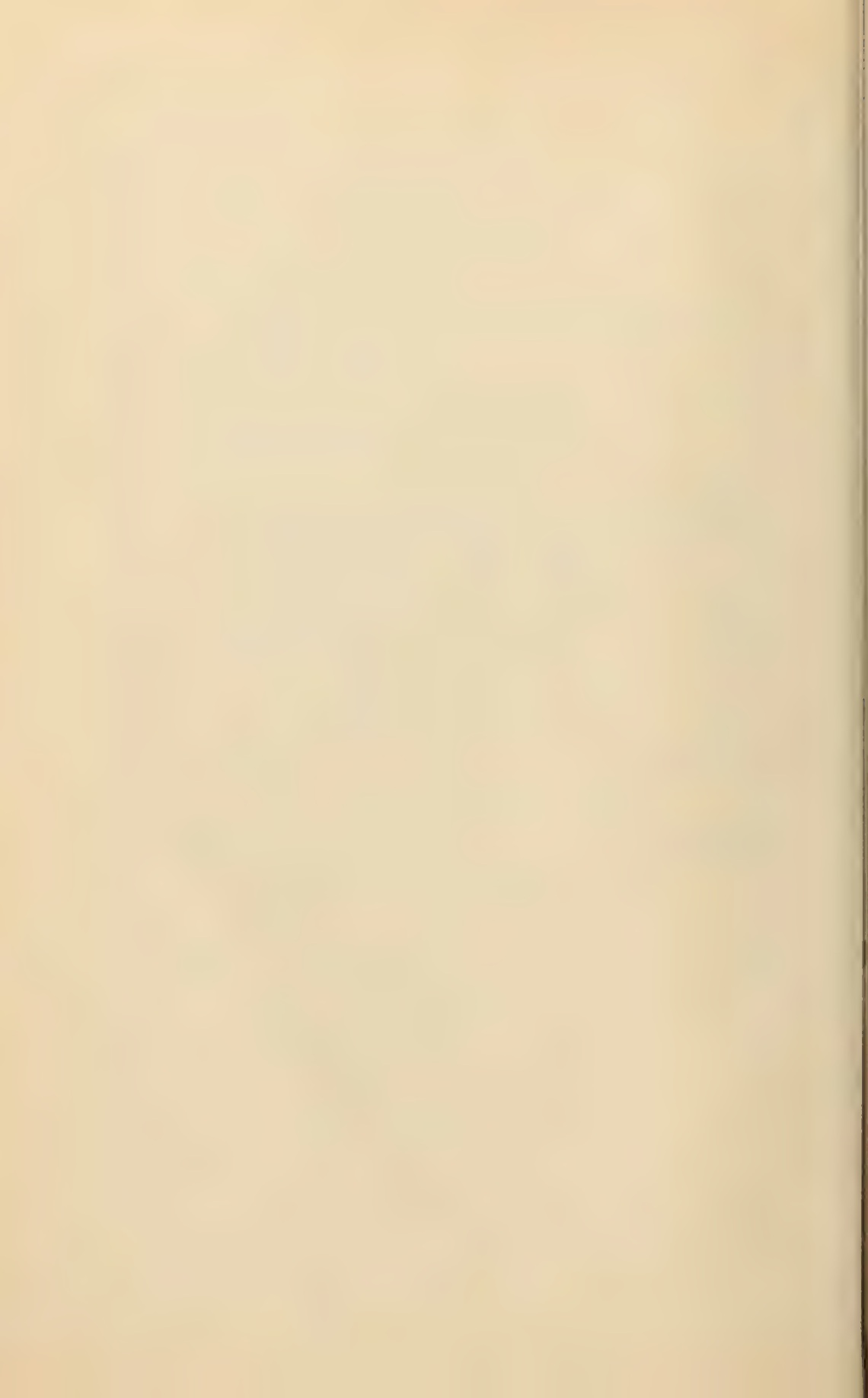
England at the Close of the Nineteenth Century, <i>Emil Reich, London.</i>	I
Mountain Structure and Its Origin, <i>James Geikie, Edinburgh.</i>	17, 202
The X-Rays in Medicine, <i>Francis H. Williams, M. D., Boston.</i>	42
The Public Library in the United States: Some Recent Phases and Tendencies, <i>Herbert Putnam, Washington.</i>	57
The English People: Notes on National Charac- teristics, <i>Bernard Bosanquet, London.</i>	71
American Interests in the Orient, <i>Charles A. Conant, Boston.</i>	117
Nietzsche and Darwinism, <i>Alfred Fouillée, Menton.</i>	134
The Decorative Sculpture of Auguste Rodin, <i>Camille Mauclair, Paris.</i>	166
The Real Ibsen, <i>William Archer, London.</i>	182
National Expression in American Art, <i>Will H. Low, New York.</i>	231
The Situation of France in International Com- merce, <i>André Lebon, Paris.</i>	252

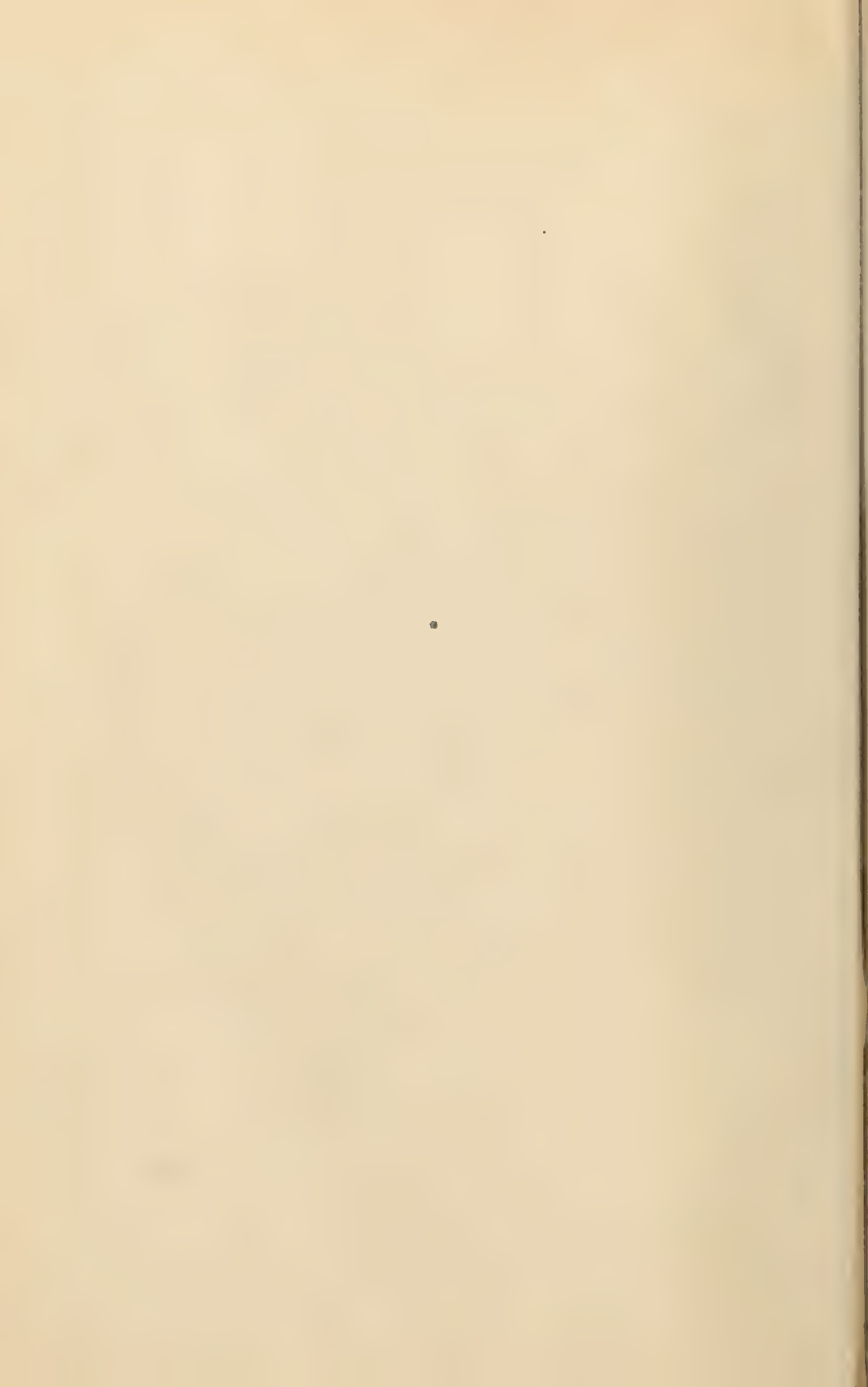
The Problem of Development,	274
<i>Thomas H. Morgan, Bryn Mawr College.</i>	
Child-Study and Education,	314
<i>James Sully, London.</i>	
Civic Reform and Social Progress,	344
<i>E. R. L. Gould, New York.</i>	
The Russian People,	359
<i>Ж. Новиков, Odessa, Russia.</i>	
West Point,	411
<i>Col. C. W. Larned, U. S. Military Academy.</i>	
A Tribute to Verdi,	434
<i>Pietro Mascagni, Rome.</i>	
The Law of Historical Intellectual Development,	444
<i>Ж. S. Stuart-Glennie, Haslemere, England.</i>	
The Science of Religion : Its History and Method,	464, 550
<i>F. B. Jevons, Durham, England.</i>	
The Iron and Steel Industry : An Introspect,	495
<i>H. F. Ж. Porter, Bethlehem.</i>	
M. Antoine and the Théâtre Libre,	511
<i>A. Ferdinand Herold, Paris.</i>	
German Criticism,	526, 648
<i>Richard M. Meyer, Berlin.</i>	
The Principles of Modern Dietetics, and Their Importance in Therapeutics,	570, 679
<i>Carl von Noorden, Frankfurt, a. M.</i>	
A History of Japanese Art,	590
<i>John La Farge, New York.</i>	
The Women of the Renaissance,	597
<i>B. W. Wells, New York.</i>	
The Native Vigor of Roman Art,	602
<i>Frank Miles Day, Philadelphia.</i>	
The American Woman,	607
<i>Hugo Münsterberg, Harvard University.</i>	

CONTENTS.

v

The Encroachment of the American College Upon the Field of the University,	634
<i>Simeon E. Baldwin, New Haven.</i>	
The Declaration of Rights of 1789,	673
<i>André Lebon, Paris.</i>	
Railway Alliance and Trade Districts of the United States,	703
<i>Charles H. Hull, Ithaca.</i>	
The Literature of Expansion,	719
<i>Charles A. Conant, Boston.</i>	
Two Works on Decorative Art,	728
<i>Russell Sturgis, New York.</i>	
Up from Slavery : Mr. Booker T. Washington's Autobiography,	737
<i>Harry Thurston Peck, New York.</i>	





ENGLAND AT THE CLOSE OF THE NINETEENTH CENTURY

EMIL REICH, *London.*



IN the history of England, for the fourth time, the close of the century coincides with the termination of an old era and the beginning of a new age. The end of the sixteenth, seventeenth, and eighteenth, centuries terminated and inaugurated eras big with events and ideas; so does the close of the nineteenth. But while the previous three centuries ended with the decay of absolutism (1603), the cessation of civil wars (1702), and of corrupt oligarchy (1832), respectively; and inaugurated, in succession, representative institutions, civil freedom, and colonial expansion; the close of the nineteenth century reveals not the ascent of British policy, but a diminution of its power.

This is the burden of the following lines. In order to bear out my statement, probably a startling one to most readers, I must premise a rapid historic view of English policy since the time that England commenced to play a conspicuous part in European politics.

England's power is in reality not very much older than the time of the union of England and Scotland (1707), or since the year when Great Britain, from having been only a physical island, became a political island. As long as the Scotch, in the Middle Ages the Welsh too, seriously threatened the rear and flanks of the English, the latter could not possibly engage in large

foreign enterprises, military or colonial. Elizabeth's victory over Philip II. was glorious, but it had more effect in stimulating the intellect and imagination of the victors of the English Salamis, than in adding substantial strength to the English polity. When, however, William III.'s conception of union with Scotland was at last realized, and England's frontiers, save the southern, were safe from hostile invasion, the British nation was given that immense leverage of action which raised it irresistibly to the rank of a great Power. From 1688 to 1815, through a succession of six gigantic wars, England wrought her way to maritime supremacy and to the foundation of a colonial empire scattered all over the globe. This is well known; what, however, is perhaps less noticed is that the period from 1688 to 1815, or roughly speaking the eighteenth century, this the heroic age of the English, stands out in conspicuous contrast to the nineteenth century, in that the eighteenth had, with very few exceptions (such as the Russo-Turkish war of 1769-1774), none but international wars. International was the war from 1688 to 1697; even so the wars from 1701 to 1713; from 1740 to 1748; from 1756 to 1763; from 1775 to 1783; and international in the widest sense of the word were the great campaigns from 1792 to 1815, the epics of the French Revolution and Napoleon. In the nineteenth century, on the other hand, there has never been an international war. As if by concerted measures, the Powers carefully avoided and still avoid to widen the sphere of war, or to increase the number of the combatant parties. They localized wars. This policy of localization has succeeded with the Germans, who adroitly isolated France in 1870-71 to perfection; in Austria it has wrought havoc and ruin. Austria-Hungary is no longer a power of the first class; the Triple Alliance, a real cripple alliance for the Dual Monarchy, has secured the safety of her German and Italian frontiers, indeed, but by detaching Austria-Hungary from international conflicts, has also sensibly reduced the prestige and influence of the Danubian realm.

England, then, in the last century shared in all the great international wars, and by clever use of conflicting interests and by a series of decisive victories, built up her maritime and colonial empire. Like ancient Rome, England never deliberately started on a career of "world empire" making. She did make that empire all the same, *rebus ipsis dictantibus*, as the Roman jurists said. At that time the most powerful continental opponent of England was France. Accordingly, England never attacked France single-handed. Using, wisely as well as shrewdly, the prevalent internationalization of wars, England fought Trafalgar while France was being fought by Russia and Austria in the terrible campaigns of Ulm and Austerlitz; as she fought the battle of the Nile while France was actually fighting or preparing to fight from the Pyramids to Amsterdam, and from Naples to the Upper Danube. The end was Waterloo for the French; as it had been Yorktown or rather Cape Henry (the most momentous and least known naval engagement of modern times), for the British when, for once, *they* were exploited by international coalitions.

England's greatness, obtained by wise and vigorous manœuvres at a time when all conflicts were international and profits gleanable on more than one side, was, like that of Rome, a resultant rather than an intended result. In the years 1808 to 1815 she had neither a statesman nor a general nor an admiral of more than average cleverness. Yet it was precisely then that she reached her zenith. Hers was and still largely is a power borne by facts and circumstances rather than by individual genius. But facts and circumstances change. When Victoria came to the throne, the new era, the era of localized wars, had long set in. There was no longer any chance for new "resultants," and with profound wisdom, the Queen has throughout all her long reign most anxiously avoided the one possible source of international complications; to wit, a war with France. Sovereign of vast colonies already at her accession, she, for a long time, really

worked only for the maintenance or convenient increase of what she had inherited. England, having for various reasons, almost a monopoly of most industries, could and did, up to 1870 maintain her great power without apprehension and with placid dignity.

Characteristically enough, England's grandeur, the work rather of the genius of circumstances than of that of her great personalities, was since 1870 to be most seriously questioned by two persons, masters rather than the make of circumstances: Bismarck and Lesseps.

II.

Bismarck founded both the German Empire and the German aspiration for a "world empire." At one stroke, all the possibilities of eighteenth century diplomacy vanished and the secular fight between England and France was inevitably transformed to a, no doubt, long rivalry between England and Germany. For now the Germans electrified by their great victories, discharged their fresh energy into commercial and industrial channels, and guided by the statesmanship of the Iron Chancellor, seriously commenced the building up of colonies. The new rival was at first smilingly ignored by the English. No danger could, they thought, come from such purely academic attempts of an academic nation. The temper of the English, it must be confessed, is one very easily given to pooh-poohing people. Alone, of all the white nations, the English have undergone for nearly four generations neither a national humiliation such as Jena, Sedan, or Sadowa, nor a civil war. They cannot, therefore, but think, that in them history has retained a force superior to that of other nations. In keeping with that natural attitude of theirs they did not take the rising rivalry of the Germans *au sérieux*. Here is the first of the historic errors. A second was to follow or rather, arose at the same time.

It so happened, that while Bismarck completely displaced the

highroads of international politics, a Frenchman deflected the highroads of international trade. The work of Lesseps can, in reality, be compared only with exploits of the magnitude of Columbus' discovery. The immortal Genoese, trying to replace the eastern trade-line between Asia and Europe, then more and more closed by the Turks who had subverted the Greek Empire in 1453, thought of and discovered a western line. Lesseps, by completing the Suez Canal, restored the ancient trade-route to Asia, and, as it were, rediscovered Egypt, Mesopotamia, India. The English, to whom strange to say, geo-politics is an unknown quantity, first blindly combated Lesseps' plans. Luckily the last great English statesman, Beaconsfield, picked up in time a considerable portion of the shares and so inaugurated the sound policy of 1882, when England, to secure *the* road to India, secured a firm hold on Egypt. Just as the Frenchman, Dupleix, taught the English how to conquer India, even so another Frenchman showed them the importance of the Suez Canal and of Egypt.

By the works of Bismarck and Lesseps the entire policy of England underwent, that is, ought to have undergone, a radical change. The old methods could no longer be applied. New ideas, new measures were required. In 1885 and the following years Germany acquired huge territories in Africa and elsewhere. Germany, still too feeble on sea to risk a direct attack on England, could not and did not think of proceeding on a straight line, as she had done in the case of France. She was bound to proceed, as England had done in former times, in a roundabout way, and *par ricochet*. Chatham used to say, he would conquer Canada in Germany. The hint was and is not at all too subtle for Germany. If Canada could be conquered in Germany, why not China in South Africa? Egypt could not be touched, on account of the French; nor Asia Minor, on account of the more than secular and needful friendship between Prussia and Russia. South Africa, on the other hand, was a good point of attack. There,

strange to say, Bismarck's and Lesseps' *radii vectores* met as in the point of an arrow. The reasons are simple. Before the opening of the Suez Canal, the great eastern trade-route went round the Cape, and was on account of its length and costliness, practically in the hands of the British. The Dutch colonists at the Cape—the majority of the population—naturally profited by that circumstance very considerably, and in their loyalty to England that material profit entered for no small share. Since 1869 (opening of the Suez Canal), however, the Cape has lost most of the advantages accruing to her from her former position as the centre of the eastern route. The loyalty of the Dutch lost its probably strongest motive. Unrest and discontent set in. Such simmering unrest only needs small kindling to break out in flames. The kindling was found. It was represented by the peculiar, one might almost say, aggressively shy and shyly aggressive spirit of one of those border-nations that have, in all history, started the great work of state-building. When the ancient empires of the Assyrians, Babylonians, Egyptians, and Hittites had in turn or simultaneously nearly swallowed up all Western Asia, their power met with unconquerable resistance in the small border-communities of the Phœnicians and Hellenes. Phœnician Arad and Tyrus, backed by the sea which the inland empires were unable to master, resisted all attempts on their existence as city-states; and their ever memorable example was imitated by the Hellenes of the coasts and islands of Asia Minor and later on of Greece proper. Making up by intense intellectual development for the lack of extensive material forces, those border-states taught the world the great lesson of civilization and the construction of highly organized states. So it was in the Middle Ages, when the Italian city-states, likewise on the borders of several great empires (the Germanic, the Byzantine, and the Mohammedan), repeated the heroic deeds and the wonderful intellectual progress of their classical forefathers. England herself is, as against the continent, a small border-state difficult to invade, easily invading others.

The discontent in South Africa, then, found its crystallizing nucleus in one of those border-nations, to whom history and their country, that is, the greatest powers in time and space, had given energies such as had in Asia and Europe initiated the history of the continent. The Boers, rather than submit to the rule of non-Boers, endured untold hardships and privations, atrocities and horrors, during the twenty years after the Great Trek in 1836. At last they were firmly seated on their own ground, in a difficult country, the surface of which is as if specially made for easy defence, and the interior of which is replete with the metals that feed and sustain war, iron and gold. Conflict with the British of the Cape was unavoidable; it was a border conflict. The first Boer war (1879-81) ended in a few minor British disasters, but, finally, in the conclusion of a peace which, whether by the intention of Gladstone or no, was a negotiation concluded wisely and in the true interests of England. It enabled England to devote her strength to the "pacification" or conquest of Upper Egypt and the Sudan, which is, since the existence of the Suez Canal, one of the most vital points of England's highways. Had Gladstone, as his opponents not unfrequently and indignantly postulate, continued the first Boer war, he would have not only quickly found himself in a maze of guerilla wars more dangerous and less profitable than are the present guerrillas in South Africa, but he would have also lost his grip on Egypt. The Boers, like all border-nations of that kind, are fighters born. Their great qualities as soldiers on the defensive are only surpassed by their unconquerable patriotism; and what Lord Roberts at the head of two hundred and fifty thousand men has been unable to achieve in fourteen months' fighting, Gladstone's generals with very much poorer facilities in soldiers, railway, and telegraph, could most certainly not have carried out in three years. The soil of the Dutch republics proved at once their boon and their bane. The discovery of rich diamond and gold mines attracted to the territory of the republics vast numbers of immigrants

and chiefly the shark of the financial sea, the international capitalist. As in all new mining districts, the feverish atmosphere of exploiters and exploited begot trouble, grievances, friction. Into this heated and swampy atmosphere fell the spark of the Jameson Raid.

III.

This is not the place to criticize or characterize that raid. I am only concerned with its bearings on the policy of England.

It will be remembered, that the raid had a prelude or better, antecedent, and an epilogue; the message from President Cleveland to England concerning the Venezuelan boundary question and the telegram of the German Emperor to Mr. Kruger. The three almost simultaneous events tended to fill the British nation with a sentiment of deep anger; but there can be no doubt that the telegram of the Emperor rankled most in their hearts. I have never noticed such general and intense indignation in this country before. The gratuitous and, as the Paris Arbitration has shown, quite unjustified taunt and insult from Mr. Cleveland appeared feeble beside the "gross provocation" from the Emperor. The rancor caused by that telegram has never subsided, and it was one of the chief proximate causes precipitating the present Boer war. The public here took it as a personal offence directed against British bravery and British military greatness, being uttered, as it was, by the master of the greatest modern army in existence. The people were in the mood when war seems necessary to reestablish the national prestige. The mood was carefully utilized by the international capitalists of South Africa, and by Mr. Chamberlain in England. The latter is an able manager. Like most men in a large way of business he bases his speculations on broad assumptions, such as the most widely felt instincts of his nation at a given moment. His chance had evidently come. Nothing could be more popular than a Boer war. Accordingly the war broke out. It is here immaterial

to investigate whether Mr. Chamberlain acted as the father or as the Socratic midwife of that war. The war broke out. It was, and has been to the present moment a war of surprises. Surprise, I mean, to that rather numerous class of people who have never studied history seriously. By such people as have, the Boer war has since January 1900, been classified amongst those unending, hopeless wars which border-nations proper, such as the ancient Phœnicians, the Hellenes, the Scotch, the Hungarians, etc., will wage for centuries, if necessary, and which can end only by extermination, profitable compromise, or complete victory of the border-nations. It has, so far, never ended in complete victory of the imperial nation over a still extant border-nation proper. The Boers are such a nation. Their unique struggles in the past; their peculiar soil endow them both with powers and opportunities that no threat can weaken and no army minimize. A thousand times we have been told that the Boers were "thoroughly discouraged and demoralized"; it invariably proved untrue. A thousand times has it been said by the most authoritative British journals, that the Boers were only the dupes of Mr. Kruger and of his vain promises of European intervention, and that, could the ignorant Boers be undeceived, they would surrender at once. It invariably proved untrue. Mr. Kruger has long left the Transvaal, but the Boers are still continuing their warfare. They who still persist in believing that the Boers seriously hope for European intervention, and that that hope of theirs alone encourages them to go on with their titanic struggle, are singularly blinded by ignorance of the Boer character. Most of the Boers—we have it on the authority of the majority of English and American war-correspondents and other writers—are clear-headed, shrewd, steady people. They have long learnt the elementary lesson of politics to the effect, that it is a pure business of *do ut des*; that Germany, France, or Russia find greater advantage in England's so far unyielding attitude to the Boers, than otherwise. For that unyielding attitude protracts the war indefinitely, and thus keeps England's

power paralyzed in South Africa. To put it in one word: The South African war Europeanizes the position of England. Hitherto England has been rather a country near Europe, than a European country, in that England alone, of all European countries, was practically free from the very danger that makes and unmakes over two thirds of all the policy, sacrifices, apprehensions, and expenses of continental Europe, that is, from likely invasion. The Boer war has changed all that. England can henceforth no longer carry on one great war at a time; she must needs carry on at least two. She is now in the position of her former great rival, of France in the seventeenth and eighteenth centuries. Even should the Boers be temporarily defeated, which is still very far from being the case, they will unfailingly rise again as soon as England is involved in some great war with Germany or Russia. Already they are substantially aided by their Dutch brethren of the Cape; and that aid, hitherto disguised and, as it were, latent, is bound to become more and more manifest. The Dutch have, like all small nationalities, the most tenacious and unalterable love for their nationality. Whether there really was or no a Dutch conspiracy proper against British rule in South Africa before the present war, it is mathematically certain that such a conspiracy is going on now, and will be renewed incessantly in the near future. Willful prejudice alone can prevent from seeing with absolute clearness that neither the Boers nor the Cape Dutch were conscious of their powers of resistance as proved by the present war. They have by this time learned their own strength. Although never disposing of more than twenty thousand men in the field, they have been able to inflict serious defeats on British armies, and to offer efficient resistance now for fourteen months. A successful conspiracy against England, formerly a mere day-dream, in the realization of which nobody in South Africa seriously believed, has now become a matter of possibility. If the Cape Dutch join the Boers openly, British rule in South Africa becomes a mere question of time. Lord Salisbury, a few years ago, in a

public speech vaunted the providential fact that England had no frontiers, no easy line of frontal attack. The noble Lord has undone this providential advantage. England now has such a "sensitive" frontier, and it only remains for us to inquire whether the enemies of England are likely to avail themselves of the altered configuration of England. At the outset I said that the history of England owes its great ascent in the last century to her having then become an island proper, a political island. Lord Salisbury and Mr. Chamberlain have successfully made of England a peninsula. A country that, up to 1899, had practically no vulnerable side, was, with great show of imperial indignation and throbbing righteousness, disfigured by the artificial super-addition of a most vulnerable land-border. The signs of the time were in vain. In vain the protests of the best intellects of England, of Herbert Spencer, of Lecky, of Professor Maitland, of Courtney, and a host of brave, honest, clear-sighted Englishmen, such as Mr. Massingham, late editor of the *Daily Chronicle*, Frederick Harrison, etc. The leading statesmen of both parties, the Tories, in order to ride on the wave of a popular war into a further lease of power, the Liberals because they had no light to follow and thus had to put up with the tallow candles tendered by Lord Rosebery and Sir Campbell-Bannerman,—neither party grasped the real point of that war. Neither party saw, nor sees, that that war has affected the vitals of England so profoundly as to alter her very political geography. Not two vast provinces have been added to the British Empire, as the jingoes (i. e., nine tenths of England) fondly believe, but the Channel has largely disappeared and England has become fatally vulnerable at a point where nothing short of criminal levity could render her liable to serious attack.

This is, I venture to submit, the true reading of the Boer war. As to the Boers "settling down," "pacifying," "giving up the struggle"—it must not be thought of. Apparently they cannot technically be placed *hors de combat*, morally they never

will. To believe in such an emergency, is folly ; to declare and proclaim it, is a crime against England. The wound will continue bleeding ; two million pounds sterling (ten million dollars) will continue to be spent a week ; one thousand young Englishmen will lose their lives or health each month ; but the Boers will not surrender. They could not do so, even if they tried to. *C'est plus fort qu'eux*. Will the English give in, although they can now easily do so ? They will continue ; so will the Boers. So did people very much inferior to the Boers ; so did the Berbers of Algeria for eighteen years against France ; and the Caucasians for over fifty against Russia. The Boers do not depend on this or that individual leader of theirs. De Wet may be captured ; so may Botha. Others will take their place.

However, it will be asked, why should even a protracted war in South Africa render England so very much more vulnerable ? Why should Germany, England's neighbor all over southwest and central Africa, necessarily be hostile to England ? For incontrovertible reasons.

IV.

The early hostility between Germany and England is one of fatal necessity. It is the consequence neither of mere personal nor, as the Germans would say, "subjective" feelings, of articles in newspapers, or manœuvres of party leaders, or of dynastic or "racial" antagonisms. It is a geo-political necessity. The final result of the tricentenary struggles on the continent is represented by the fact that all the greater powers now consist of territories continuous, unbroken, definitively circumscribed. Formerly the continent consisted of realms formed by a greater or lesser number of *enclaves*, of scattered members, of geographically disjointed elements. Prussia, Austria, Italy had no geographical unity whatever. All that is now over and a matter of the past. Germany is an unbroken geographical unit ; so are the other powers. Under these circumstances not one of the continental

powers can readily indulge in the acquisition of new territory on the continent of Europe. If its population is stationary, as in France, that difficulty is not very serious. If, however, its population is rapidly increasing as in Germany, expansion outside Europe becomes a mere matter of absolute necessity. Russia can and does expand into Asia; Austria-Hungary, although increasing its population at a much smaller rate than Germany, might, perhaps, expand into the Balkan. For Germany there is no field of expansion near at hand. She must needs be aggressive outside Europe. The best portions of the globe are already in firm hands. Germany can acquire some of them only by sheer force. Of great colonial powers, however, there are only three: England, France, and Holland; and since any attack on Holland would be considered a *casus belli* by England, practically only two. It is evident that Germany will long avoid having another war with France, in that such a war, if provoked by Germany, would inevitably involve the latter in a war with Russia, France's ally for such an eventuality. England remains. Now, England has, by her geographical configuration and quite apart from her superior fleet, an immense advantage over Germany. The German merchantmen are bound to run the gauntlet in the English Channel, just as were, in former centuries the Dutch merchantmen. England can, therefore, in case of hostilities inflict exceedingly grave damage on German trade, both in European and other waters. Transmarine commerce, however, is indispensable to Germany as a great Power; and the Germans have long proved their peculiar aptitude for it. Germany, then, must either abandon her ambitions or fight England. The former being impossible, the latter becomes a necessity.

It is immaterial whether Germany has now, or will have in six or eight years, a fleet strong enough to fight England with any chance of success. The Germans had, previous to the Boer war, only one serious advantage over the English; now they have two; in a short time they will have three. The first is

their superiority in scientific equipment, in methodic and systematic organization of everything relating to army, navy, and the state in general. The English, like all nations with whom powers of will and character are predominant, neglect system and think little of scientific methods. *The Times*, it is true, has long been preaching the necessity of dropping the old British disdain of method and system, and weighty voices have been raised in favor of the adoption of the German love for system. However, *n'est pas beau qui vent*. The English education of young men, precisely by making them virtuosi of will-power at the age of eighteen, inevitably sterilizes their intellectual elasticity. In England everybody specializes at once; and only exceedingly few adopt the principle, that we must specialize only after having laid out a solid framework of general knowledge. It is, therefore, to be apprehended that the German fleet, even if numerically smaller, will, owing to better application of scientific principles, possess serious advantages over the British fleet. The Germans have in their war with France, fully proved the superiority of scientifically trained theorists over mere practical generals. Not one of the German generals had, with the exception of the Austrian campaign in 1866 of three weeks' duration, ever been in a great war. All of them were "theorists"; all the French generals were old practitioners; the result is known.

To this is now added the second, and equally considerable advantage on the part of Germany. The Boer war, far from terminated, will never end with the peaceful submission of the Boers. Now, it so happens that huge German colonies are close to the country of the Boers. No sooner has Germany declared war on England, than she will, in her evident interest, foment a new and even more formidable rising of the Boers, should the latter at that time be conquered, so as to force England to carry on two great wars at a time, one in South Africa, and the other on sea. In other words, a war with Germany will henceforth mean for England the very kind of struggle that she had to

undergo in the times of the war of the American Independence, a war, that is, both on land and on sea. The result is, and can be, only one.

However, there is, as I said, a third advantage accruing to Germany and in a very short time too. I mean the indispensable naval alliance between Italy and Germany. Austria-Hungary will at last, it is most fervently to be hoped, grow out of her mistake in clinging to the Triple Alliance. Italy, on the other hand, will soon give up her hitherto pro-British attitude. Owing, no doubt, to her analogous souvenirs in Abyssinia, where Italian armies met with sad defeats, Italy has on the whole been against the anti-British movement of the continent. However, in this as in every other case, the base of history is written not by the desires or the cunning of diplomatists or journalists, but by geography, or as I prefer to call it, by geo-politics. The Suez Canal, the influence of which on English politics we have seen in Egypt and in South Africa, will work no less remarkable changes in Italy too. By her position in the centre of the Mediterranean, the classical peninsula is bound to become the centre of all the eastern trade. So far she is pro-English for reasons of fear. Her coasts being more exposed to England's naval power than the coasts of any other country, she must keep friends with the English and must for a time continue to be under the virtual patronage of England. The process of immense coast fortifications in Italy is, however, nearing its completion. As soon as that is done, Italy wants only a strong naval ally to assert her natural claims on paramount importance in the Mediterranean. The ally will be none but Germany.

Had British statesmen read the immense changes brought about by Bismarck and Lesseps, not to speak also of the altered international position of the United States and Japan, in their true light, they would have treated the Boer difficulty in a spirit wholly different from that actually at work. The difficulty was one easily removed. There is a clear precedent in English policy for

difficulties of that kind. In India the British government was formerly facing a nation somewhat similar to the Boers, the valiant Sikhs. After bootless struggles, the British government made, by timely concessions, the Sikhs into real allies of Great Britain. It is well known how the Sikhs saved British rule in India in the time of the Mutiny. Wise measures might very well have made of the Boers the Sikhs of South Africa, and in that case it would have mattered nothing whether the Boers continued or no to elect their own presidents and to use their own language. This, however, was not done, and England's power, a most beneficial, a most necessary power in the economy of history, has been curtailed, reduced, clogged by her own statesmen, and in the very way in which the much maligned grandfather of the Queen contrived to lower the prestige and the power of England. But George III. obtained a chance of making amends for his mistakes in another international war. The present generation will not get that chance. The Powers on the continent have long learnt their chief lesson: to abstain from international wars. See China. Such wars only help England. The balance of power on the continent has been established in the last three centuries. Now comes the balance of power on sea. The first warning the British statesmen have not taken. We shall see how they will respond to the next warning.



MOUNTAIN STRUCTURE AND ITS ORIGIN

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THE origin of mountains as of other land forms can be ascertained only in one way,—by studying their structure or architecture. Without investigation of that kind we are left to vague surmise, as, indeed, was the case with many eminent men in the infancy of geological science. Not until the study of rocks

and of rock arrangements had fairly commenced was the first step taken to work out the history of mountains; and just as the knowledge of rocks and geological structure has increased, so has the conception of the origin of mountains, and of land features generally, grown and widened.

At one time it was the prevalent belief that mountains were primitive, or, in other words, original protuberances of the earth's crust. This was the doctrine maintained by Leibnitz in 1749, and upheld by Buffon in 1790. Long before, however, Steno, a Dane, at one time professor of anatomy at Padua, published a remarkable treatise (1669) in which he showed that there was an obvious connection between disruptions of the crust and the existing inequalities of the earth's surface. He certainly did not suppose that mountains were primitive, and similar views were entertained in later times by Lazzaro Moro in Italy (1740) and by John Michell in England (1760). According to these observers earthquakes and volcanic action must be invoked to explain

the phenomena. But the old belief in the primitive origin of mountains died hard,—many writers of the eighteenth century still maintaining that view, while at the same time admitting that some mountains owed their existence to volcanic action. Before the century closed, however, the truth had dawned on James Hutton, a Scottish geologist, whose sagacious observations and original conceptions were subsequently supported and extended by his friends and disciples, Professor John Playfair and Sir James Hall. These able investigators recognized that mountains were composed of flexed, convoluted, and fractured rock masses, and hence they argued that such structures were indisputable proof that the crust itself had been upheaved,—a conclusion which soon gained general acceptance. Both Hutton and Playfair believed that the rock structures referred to were the result of violent disturbances, but they did not go so far as to infer that all earth movements were of this nature. Playfair, indeed, when speaking of the present lands, says quite clearly that they “have been raised up from the bottom of the sea by a process that should seem in general to have been gradual and slow.” And this continued to be the opinion held for many years afterwards,—two kinds of crustal movement being recognized, one violent and sudden, as in the formation of mountains,—the other gradual and protracted, as in the elevation and depression of broad land surfaces.

From Hutton’s day down to a time well within the memory of many who are still happily with us, it was usually supposed that mountains had been elevated by “a force directed from below upwards.” And of all the forces in nature none seemed to Playfair “so capable of the effect we would ascribe to it as the expansive power of heat.” His friend, Sir James Hall, however, had shown experimentally that rock folds had been caused by horizontal thrusts, and the source of the lateral compression, according to him, was “the forcible intrusion of granite.” Granite or other igneous mass, it was supposed, coming up from

below, had invaded an area of originally horizontal strata, and by squeezing the beds aside had flexed and folded them. This was the germ of the "plutonic theory" which thereafter came into vogue, according to which mountains owed their origin to the uprising of those enormous masses of granite that so frequently crop out along the axis and seem to form the core of many a mountain-range.

To Elie de Beaumont, the famous French geologist, belongs the merit of having been the first to show how the geological age of a mountain-range could be determined, but, in common with his contemporaries, he continued to believe that mountains owed their origin to sudden and violent movements of the crust. He conceived that during the cooling and contraction of the earth's interior the external crust did not gradually sink so as to keep continually in touch with the slowly shrinking nucleus. For long periods of time it sustained itself and thus became partially separated from the molten interior. Eventually, however, sudden collapse took place; and, since the crust had to accommodate itself to a smaller space, much crushing and folding ensued, while here and there relief was found by the violent upheaval of long ranges and chains. These conceptions found considerable acceptance for a time, and were believed to explain the appearance, along the axis of a mountain-range, of granite and other crystalline rocks in a more satisfactory manner than the old plutonic theory. It was inferred that the central axis of a chain coincided with a great vertical fracture,—that the crust, yielding to extreme lateral pressure, had cracked across,—the free ends of the ruptured rock masses rising up vertically along the line of fissure, while molten matter was intruded between.

Sir Charles Lyell stoutly opposed Elie de Beaumont's conclusions, and argued that there was really no evidence to show that such paroxysmal or catastrophic movements of the crust had ever taken place. He thought that "the gradual fusion of rocks, and the expansive power of heat exerted for ages, as well as the

subsequent contraction of the same during slow refrigeration, might perhaps account for the origin of mountain-chains." Referring to the relative insignificance of mountains, which, as Dolomieu had remarked, are "far less important, proportionately speaking, than the inequalities on the surface of an egg-shell, which to the eye appears smooth," Lyell concluded that "a centripetal force affecting the whole planet as it cools, seems a mightier cause than is required to produce wrinkles of such insignificant size." But beyond this and some other vague suggestions that admirable writer did not offer any particular explanation of the origin of mountain structure. He recognized, however, that convoluted strata are evidence of compression, and sought to account for the source of the pressure in various ways. Referring to the great earthquake of 1822, which resulted in the permanent elevation of the coast of Chili for a few feet, he remarks that the power which could do this would suffice to produce any amount of folding, if its direction instead of being vertical happened to be oblique or horizontal, and if the rocks were "subjected for a sufficient number of times to the repeated action of the same force," which in this case he thought was volcanic. But no suggestion is offered as to how the desired oblique or lateral thrust could be brought about. Another cause of rock folding he found in movements of depression. The subsidence of the crust for hundreds or thousands of feet would result, he conceived, in the flexing of strata and the packing of the same into smaller space. Other possible causes of lateral pressure were suggested, but none of these seems to have commended itself to subsequent investigators as an important factor in mountain making.

Little progress could be made towards a satisfactory theory before the geological structure of individual mountain-chains had been carefully studied in detail. Many observations and descriptions of the folded rocks of the Alps and other regions had been recorded, more especially by that pioneer student of mountain

structure, De Saussure; but for half a century after the appearance of his famous "*Voyages dans les Alpes*" (1779), geology could still present no clear conception of a mountain-range as an organic unity. It was not until the publication of Thurmann's researches in the Jura Mountains, (1832); of De la Beche's account of the geology of Cornwall, Devon, and West Somerset, (1839) and more especially of the work of W. B. and H. D. Rogers on the Appalachian Chain, (1843) that the essential structural features of a mountain-range were adequately described and illustrated, and geologists were provided with satisfactory data for a reasonable theory of mountain origin. Thanks to the labors of these brilliant observers and their many successors we are no longer in doubt as to the part played by lateral pressure in the formation of mountain-chains.

Before dealing with the present condition of the question, however, it will be well to follow for a little another line of investigation intimately connected with the subject of mountain structure and its origin. The history of a mountain-range naturally involves that of its valleys. Those who thought mountains were primitive had naturally no doubt about the valleys,—they were primitive likewise. As Hutton was among the first clearly to perceive that mountains are uplifts of the crust, so he was the first to show how these elevations have been remodelled and sculptured by erosion. "The mountains," he said, "have been formed by the hollowing out of the valleys, and the valleys have been hollowed out by the attrition of hard materials coming from the mountains." Playfair pictures the original upheaval as an immense mass of rock, naked and unshapely, and incomparably greater than all that now remains. "The operation of rains and torrents," he remarks, "modified by the hardness and tenacity of the rock, has worked the whole into its present form; has hollowed out the valleys, and gradually detached the mountains from the general mass, cutting down their sides into steep precipices at one place, and smoothing them into gentle declivities at another."

The contemporaries and immediate successors of those advanced thinkers did not agree with them that subaerial erosion and denudation had played so conspicuous a part in the history of mountains. On the contrary, the views prevalent in the earlier years of our century were those expounded by Elie de Beaumont, according to whom the multitudinous gorges and valleys of a mountain-range came into existence as suddenly as the range itself,—in short, they were simply rents and chasms opened at the time of the upheaval. Such were the opinions in vogue when Lyell's "Principles of Geology" appeared. In this famous work the author, while successfully attacking the catastrophic views advocated by De Beaumont, did not realize so clearly as Hutton and Playfair the importance of the work done by the subaerial agents in shaping out mountains and excavating their gorges and valleys. It is true he insisted that "a very large part of the inequalities now existing on the earth's surface are due to fluvial action," but he thought that "the principal valleys in almost every great hydrographical basin in the world, are of a shape and magnitude which imply that they have been due to other causes besides the mere excavating power of rivers." Rejecting the wild notions of his contemporaries that denudation had been effected chiefly by sudden deluges or by vast waves raised by the instantaneous upthrow of continents or mountain-chains out of the sea, he maintained that the principal work of erosion had resulted from the abrading action of the waves during the sinking and rising of the land. These views, admirably expounded as they were, prevailed for some time, but as observations extended geologists began to recognize that the sea had played a much less important rôle than that assigned to it by Lyell. They gradually returned, in fact, to the position held by Hutton and Playfair; and even Lyell himself, in the later editions of his works, came to modify his estimate of marine action in the direction indicated by the more advanced advocates of subaerial erosion.

Were we to sum up in a few words the final issue of the long controversy on the origin of mountains and valleys we should say that the old view of violent upheavals of the earth's crust has been abandoned. The prevalent belief now is that deformation of the crust has probably as a rule taken place slowly and gradually, and that erosion and denudation have necessarily accompanied the elevation of mountains, so that throughout the whole period of their upheaval they have been subject to continual degradation. However actively the sea may have worked upon the slowly subsiding or emerging land, geologists no longer doubt that the modelling of the surface has been effected mainly by the subaerial agents; it is to these ceaselessly active forces that the shaping-out of mountain and valley must be attributed.

Mountains differ so greatly in size and form,—so much variety, indeed, occurs within individual groups and ranges, that it might seem almost impossible to frame a satisfactory classification of the several types. And this is largely true if we consider mountains from a purely geographical point of view, and attempt to group them according to their shape, dimensions, and mode of occurrence. To a geologist, however, the work of classification is not so hard. He finds that every variety of mountain naturally comes under one or other of these two great divisions,—namely, *Tectonic* or *Original Mountains* and *Relict* or *Subsequent Mountains*.

Tectonic mountains are distinguished by the fact that they owe their origin directly either to (a) the accumulation or heaping up of materials at the surface, or to (b) the deformation of the earth's crust by subterranean action. All such heights, therefore, are *original*; they may be said in popular language to have been built or constructed as mountains, and are thus properly termed *tectonic*.

Relict mountains, on the other hand, have not been constructed or built, but are merely portions or fragments of formerly more extensive elevated areas. They have been carved out of old plateaus and shaped into mountains by the gradual removal of masses by which they were once surrounded.

The geological structure of the first group of tectonic mountains is so well known and understood that it need not detain us. We may just note in passing that the typical representatives of this group, *Volcanoes*, are true mountains of accumulation, inasmuch as they are constructed of successive sheets of lava or of loose ejecta or of both kinds of material together. Could we bisect a cone from crater to base we should see these various accumulations inclining outwards in all directions from the focus of eruption, so that in the case of volcanoes the external form is an expression of the internal structure. Mountains of this kind occur singly or in irregular groups, and now and again they extend in more or less close association along definite lines. They differ considerably in shape, according to the nature of the component materials,—some rising abruptly with steep slopes, while others are depressed cones with very gentle declivities.

The second group of tectonic mountains, which may be termed *Deformation Mountains*, exhibits at least three types of structure as follows:—

1. *Folded Mountains*, composed essentially of highly folded and steeply inclined strata.
2. *Dislocation Mountains*, the characteristic feature of which is the great vertical dislocations by which they are bounded.
3. *Laccolith Mountains*, dome-shaped swellings of the crust, due to uplifting, caused by the intrusion, at some depth below the surface, of thick lenticular masses of molten rock.

All the loftier and more extensive ranges and chains in the world belong to the first type,—they are *folded mountains*. In these we now and again find that the external form or configuration and the internal rock arrangement or geological structure coincide to a certain extent. Sometimes, for example, a long range agrees with what is known as an anticline or saddleback, that is, an arched or roof-like disposition of the strata, which are inclined in opposite directions from a common axis. Again, it occasionally happens that a longitudinal valley coincides with a

syncline, or trough-shaped arrangement of the strata, which in this case are inclined from opposite sides inwards to one common axis (Fig. 1). In both cases it is obvious that the configuration



Fig. 1. *Symmetrical Flexures of the Swiss Jura.* *a, a, a*, Anticlines; *s, s, s*, Synclines. The configuration of the ground coincides with the geological structure of the strata.

of the surface is simply the expression of the underground structure. But such exact agreement between surface and interior very seldom obtains, and as a rule is confined to the youngest ranges,—to those, namely, which have experienced least erosion and denudation. The older folded mountains have been so greatly modified,—so worn and degraded,—that amongst them coincidences of the kind referred to very rarely occur.

Folded mountains usually appear as a series of elongated and more or less parallel ranges, which not infrequently interosculate or merge into one another,—the united series extending in approximately straight or, it may be, gently curved or more strongly arcuate lines, for distances of hundreds or thousands of miles. In all cases the width of the elevated tract is much exceeded by its length. Not infrequently such a mountain-range, after continuing for some distance as one compact system, divides, and the zone of folded rocks is resolved into a series of divergent ranges. Folded mountains may traverse broad low-lying regions so as to form the backbone of a country; or they may rise along the margins of lofty inland plateaus. While not a few are far removed from the sea, many fringe the coasts of continents,—a position usually assumed by the youngest and loftiest ranges.

The geological structure most characteristic of all these mount-

ains is the flexing and folding to which reference has already been made. This structure varies in complexity. Occasionally, as in the case of the Uinta Mountains, the folding is of the simplest kind,—the strata being arched up in a single, broad saddleback or anticline (Fig. 2). Or the rocks may be arranged in a series of open,



Fig. 2. *Geological Structure of the Uinta Mountains.* A symmetrical anticline, dislocated by a normal fault at *f*. The dotted line suggests the former extension of the strata.

symmetrical waves or undulations, as in the ranges of the Western Jura and the sandstone mountains of the Carpathians (Fig. 3).



Fig. 3. *Symmetrical Folds of the Carpathians.* Compare with Fig. 1 in which the form of the ground coincides more or less closely with the geological structure.

More usually, however, the structure is infinitely complex,—the strata showing closely compressed, unsymmetrical folds, (Fig. 4)



Fig. 4. *Diagrammatic Section of Unsymmetrical Folds.*

inclined at all angles or even overturned and lying on their sides, while ever and anon the structure is still further confused by great fractures and horizontal displacements, and not infrequently by the intrusion of numerous smaller and larger masses of igneous rock. No drawing or even photograph can give an adequate idea of this remarkable architecture. Not only do we see large folds, some of which may measure many hundreds of feet from crest to base, but within each compressed fold we can recognize innumerable subordinate flexures, contortions, and crumplings, varying in importance down to puckerings so minute as to be visible only under the microscope.

Another phenomenon constantly encountered in regions of highly folded rocks is what is known as *slaty cleavage*. In this structure the rocks are traversed by close, parallel division-planes, which coincide in direction with the axes of the folds (Fig. 5).

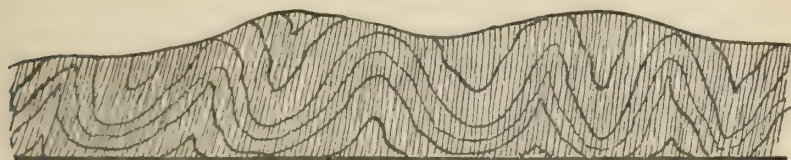


Fig. 5. *Slaty Cleavage*. The undulating lines represent folded strata ; the close-set, steeply inclined lines represent slaty cleavage.

When cleavage is well developed the rocks become coarsely or finely fissile, according as they are composed of coarser or finer ingredients. In many cases, moreover, the surfaces of the *cleavage-planes*, as they are termed, acquire a silvery glaze or lustre, due to the development of mica. As the complexity of the rock arrangements increases, however, cleavage-planes begin to disappear and are by and by replaced by the structure known as *foliation* or *schistosity*. Schistose or foliated rocks are more or less distinctly crystalline in texture, the component minerals being arranged in rudely alternate lenticular layers or laminæ. Now it

is specially worthy of note that rocks of this kind predominate in those parts of a mountain-chain where folding and contortion and other evidence of deformation are most conspicuous.

The facts thus briefly recapitulated have convinced observers that folded mountains owe their origin to pronounced lateral compression. The folds themselves are evidence sufficient in itself to prove the case, but when we enter into greater detail we find assurance made doubly sure. Examined under a microscope the mineral constituents of a fine-grained, well cleaved rock, like common roofing-slate, are seen to be flattened out and extended in the direction of the cleavage-planes, and these planes, it will be remembered, have the same trend as the axes or axial planes of the large rock folds. Obviously the folds have been strongly compressed from side to side, and the slaty structure has been superinduced as a result of this squeezing process. Even the unaided eye may oftentimes detect conspicuous evidence of crushing and squeezing. The stones of a conglomerate, for example, may be flattened and drawn out as if by compression acting in a direction at right angles to the trend of the great anticlines and synclines; and the same is the case with fossils which in highly folded strata are frequently so distorted that the geologist may have great difficulty in recognizing their species.

Further, a close study of the crystalline rocks, which so frequently enter into the formation of a complex mountain region, shows that these have sometimes been subjected to such enormous pressure that their constituent minerals have been crushed, flattened, and sheared. Whole rock masses, in short, have been compelled to flow as if they were plastic bodies. So great has been the force applied that complex chemical and mineralogical changes have been induced,—even fragmental rocks of aqueous origin having become crystalline and schistose. In a word, *metamorphism*, more or less pronounced, is a frequent concomitant of rock folding on a large scale, and especially affects those rock masses which have been most severely pressed and mashed together in a mountain-range.

To sum up : we note that in the less closely folded parts of a mountain-range the original character of the component rocks may still be recognized,—they may be cleaved and rendered in this way more or less fissile, but these changes are not so pronounced as to prevent us telling what the rocks originally were. As we approach the region of highly complicated structures, however, rock changes become more and more marked, until frequently crystallization and foliation combine to destroy all original rock characters. Aqueous rocks of various kinds are metamorphozed into schists, while massive igneous rocks, such as granite, have likewise been crushed and foliated; nay, even ancient crystalline schistose formations have been reconstituted,—new planes of foliation obscuring and not infrequently entirely obliterating the older structures.

Having now outlined the evidence which leads to the belief that the structure of folded mountains is the result of lateral

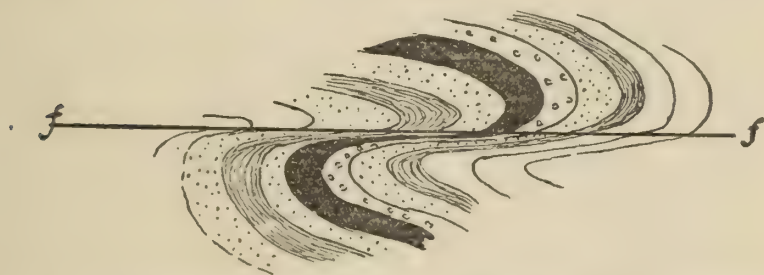


Fig. 6. *Recumbent Fold passing into a Thrust-fault.* *f, f*, Thrust-fault.

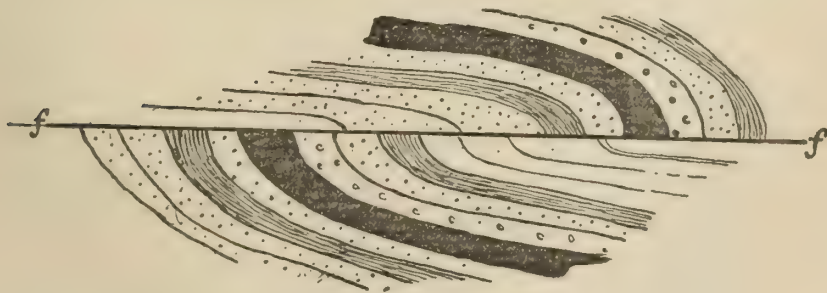


Fig. 7. *Dislocated Recumbent Fold.* *f, f*, Thrust-fault.

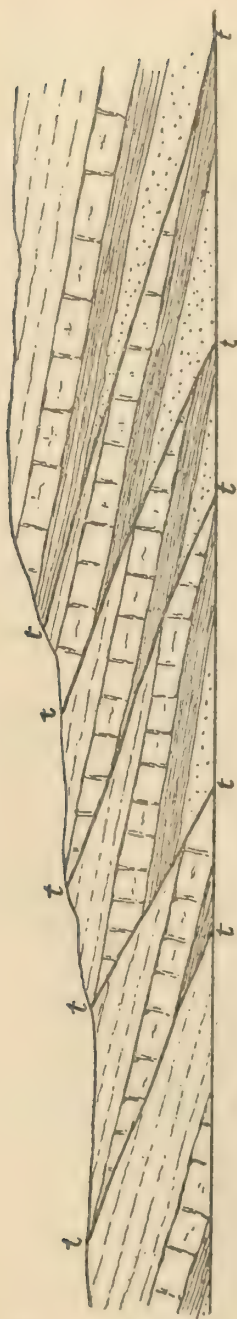


Fig. 8. *Strata Dislocated and Displaced Without Preliminary Folding.* t, t, t, Thrust-fault.

compression, we may next consider certain general structural features of a typical mountain-range. It is obvious that detailed investigation of the folds ought to throw some light on their origin,—we should be able from such investigation to ascertain the point from which came the lateral thrust that produced them. So far as our present knowledge goes, it would seem that in most mountain-chains the majority of the unsymmetrical folds lean over in one and the same direction, and it is inferred, therefore, that this indicates the trend of crustal movement. If the crests of most of the anticlines look towards the north, for example, then the movement must have been northerly. Inferences of this kind are strongly supported by the fact that the great horizontal or approximately horizontal displacements in a mountain-range have the same trend as the folds. If the latter lean over to the north the displaced rock masses are found to have moved towards the same point. Horizontal displacements of the kind referred to have often played a conspicuous rôle in the process of mountain making. The rocks have yielded to thrust not only by folding, but by rupturing. In the case of recumbent folds the crests of the closely compressed anticlines have often given way, and the one limb of a fold has been thrust for-

ward over and beyond the other (Figs. 6 and 7). In other places the strata have yielded without preliminary folding, vast slices or sheets of rock, hundreds of feet thick, having been driven forward one upon another for ten miles or more, along gently inclined or even approximately horizontal planes (Fig. 8). Thus, partly by folding and partly by rupture and displacement, the oldest rock in mountain regions are often found superimposed upon the youngest; both kinds of deformation having resulted from an irresistible lateral thrust in one general direction.

The architecture of a typical range of folded mountains shows certain well marked and characteristic features. Approaching the foot-hills of such range we first traverse a zone of horizontal or of gently undulating strata, the rocks being usually arranged in a series of open and generally symmetrical anticlines and synclines. As we proceed, however, the folds become more closely compressed and begin to lean over, until at length we reach the zone of greatest complexity, characterized by the presence of strongly inverted folds, contortions, and horizontal displacements. Crossing this zone to the further side of the range, all the complex folding and rupturing suddenly cease, and we enter at once a region where the strata extending outwards from the mountains remain in undisturbed positions. It is noteworthy that the lateral thrust has in some cases been directed towards that undisturbed region, as in the Alps, and in other cases, as in the Jura, away from it. These two types of structure might be diagrammatically represented thus:—(Figs. 9 and 10).

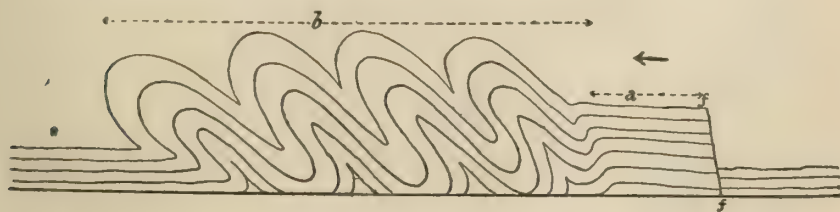


Fig. 9. *Diagram of Folded Mountains: Alpine Type.* *a*, Zone of least disturbance; *b*, Zone of greatest disturbance; *r*, Rigid area; *f*, *f*, Normal fault. The arrow indicates direction of crustal movement.

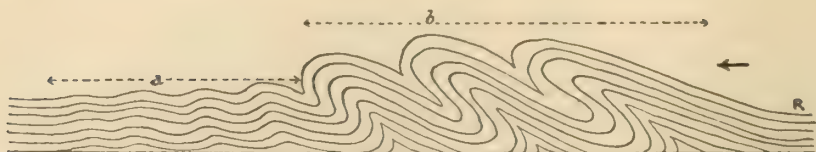


Fig. 10. *Diagram of Folded Mountains: Jura Type.* *a*, Zone of least disturbance; *b*, Zone of greatest disturbance; *r*, Rigid area. The arrow indicates direction of crustal movement.

Such, in brief, are the general structures or architectural features characteristic of folded mountains. It would be interesting to ascertain if possible whether those great deformations of the crust are the result of sudden or of protracted movements. No one has ever seen a mountain range come into existence, and evidence is not wanting to show that mountain making has probably been a slow process. Some ranges owe their origin apparently to one uninterrupted or continuous lateral thrust. These are the so-called *monogenetic* ranges. Many of the greatest mountain-chains, however, as the Himalaya and the Alps, are the result of several such movements, each separated from the other by wide intervals of time. Their first appearance was as a series of monogenetic ranges, due to one continuous thrust. Next ensued a pause of longer or shorter duration, followed eventually by renewed lateral thrusting and the formation of younger folds or ranges outside of and flanking the older series; and this process has been repeated again and again, in the formation of our *polygenetic* ranges. It is quite obvious, then, that such complex mountains have not been suddenly created. True, the mere fact that upheaval in their case has been repeated after successive intervals of repose does not prove that the movements themselves were not sudden and violent. But if we can show that the more recent ranges have been very gradually formed, we shall to some extent be justified in coming to the conclusion that the earlier

deformations were not more rapidly effected. Now it has been found that the rivers flowing from the heart of a great polygenetic chain often cut right across the younger or secondary ranges without undergoing any deflection. It is not doubted that these rivers occupy valleys in the central and older parts of the chain which were excavated long before the younger ranges had come into existence. If the latter had been suddenly upheaved athwart the old valleys the rivers must infallibly have been deflected to right or left. From the fact that no such diversion has taken place, we can only conclude that the later crustal movements were so gradual and protracted, that the rivers have been able to saw their way across the deformations just as rapidly as these were developed.

From the foregoing account of mountain structure it would seem as if we must believe that all folded ranges,—monogenetic and polygenetic alike,—owe their origin to lateral pressure, which has resulted in bulging up or elevating the disturbed areas. But the present aspect of those ranges cannot be attributed solely to subterranean action, otherwise external form and internal structure would be in much closer accord than is found to be the case. Everywhere, however, we see the evidence of enormous erosion and denudation. Prodigious masses of rock have been removed from the very youngest of our folded mountains,—not by the violent action of catastrophic deluges as was at one time supposed, but by the constant and long continued operation of the same forces which are still busy sculpturing heights and deepening and widening hollows. Those youngest uplifts of the globe yield more readily than older mountains to the assaults of the epigene or superficial agents of change. This is due partly to their greater elevation and their generally more abrupt declivities. They soar into regions where the subaerial agents act with the greatest vigor, and their steep slopes favor erosion and the rapid removal of detritus from higher to lower levels. More than this, their geological structures are frequently weak, and many of their

heights thus fall an easy prey to the elements. Hence in all such regions enormous masses of rock ever and anon collapse and shoot down from peak and precipice, while landslips on the largest scale are prone to occur. But amongst folded mountains of the greatest age erosion and denudation do not proceed so rapidly. Their original elevation has been much reduced and they have lost the abrupt configuration which must have distinguished them in earlier times. Exposed for untold ages to the attacks of the epigene agents, all their weak rock arrangements have long been demolished, and only the stronger or more resisting ones remain. Hence it is that extensive landslips are of rarest occurrence amongst folded mountains of great antiquity. With them external form and underground structure have everywhere ceased to coincide, and relative stability has been attained.

That stability, however, is only relative. The reduction of the oldest ranges may not be so rapid as that of the more recent elevations, but none the less it knows no pause. Slowly but surely hills and ridges crumble down and valleys are deepened and widened. Nothing can arrest the general decay,—even the hardest rocks and the most durable structures must eventually succumb. Should the existing sea-level be maintained a time will arrive when the old mountains shall have finally vanished and given place to low-lying plains. The progress of this gradual dissolution may be followed through all its stages, from the period of youth as seen in the Alps, down to that of old age as exhibited in the sorely wasted ranges of the Appalachians. Nay, more, geologists have mapped out the sites of mountain-chains which had already been levelled to their foundations long before the youngest uplifts of the globe had come into existence. The story of these lost mountains forms one of the most interesting chapters in the stony record, and reference will presently be made to certain European examples. Meanwhile, let it be remembered that the demolition of a mountain-chain has not often been completed without interruption. Denudation necessarily accompanies the

birth and growth of all mountains, and if upheaval has usually been a slow process, then long before a movement of elevation ceased, the configuration of a growing mountain must have been more or less profoundly modified. But the tale told by our poly-genetic ranges shows us that erosion has ever and anon been interrupted by subsidence,—the denuded high grounds becoming partially or wholly submerged. New sedimentary deposits then formed upon the sunken land, and often attained a great thickness. Eventually the depressed area began to rise again, and the younger strata which had accumulated upon the sea floor in front of the old ranges were folded and mashed against the latter. Thus the mountain-chain renewed its youth, and another cycle of erosion commenced. And the same alternation of conditions has been not infrequently repeated again and again,—so complicated is the history of many mountain-chains.

Hitherto we have been considering the structure and origin of the most important type of deformation mountains. There yet remain two types to which some reference must be made,—namely, *Dislocation Mountains*, and *Laccolith Mountains*. Dislocation mountains are so termed because they owe their origin directly to normal dislocations. They are, in short, great crust blocks lying between or enclosed by normal faults. Sometimes they occur as well marked ranges, but their more usual appearance is that of isolated mountains or irregular shaped masses of high ground rising more or less abruptly above surrounding lowlands. The most typical examples of well marked ranges are those of the Great Basin which extend north and south between the Sierra Nevada and the Wasatch Mountains. They form a series of long, parallel ridges, separated the one from the other by great vertical dislocations or normal faults. Each range shows a more or less steep cliff-like face on one side, and a long, smooth declivity on the other,—the ranges, in short, are escarpment mountains, their form being an expression of the geological structure. Of a somewhat similar character are the Vosges Mountains and

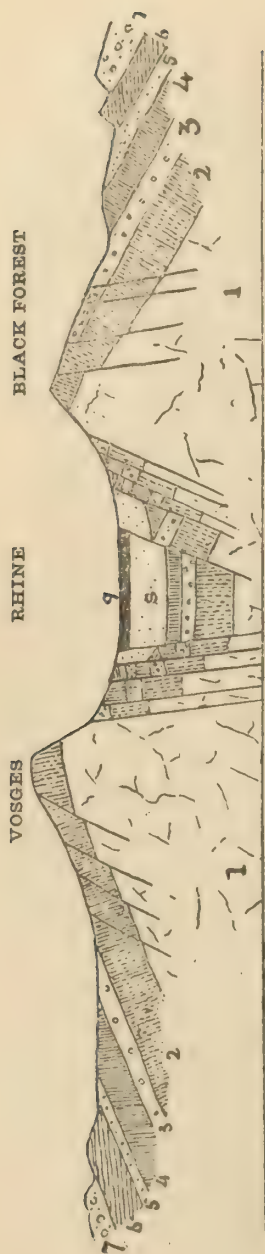


Fig. 11. Section across the Vosges and the Black Forest. 2, Granitoid and schistose rocks; 2 to 7, Mesozoic strata; 8, 9, Tertiary and deposits of the River Rhine.

the Black Forest,—separated the one from the other by the broad depression of the Rhine (Fig. 11). The escarpments of these ranges face each other, and there can be no doubt that, before the Rhenish basin came into existence, the strata seen in the Vosges were continuous with those that crop out in the Black Forest. This is demonstrated by the fact that the missing connections are met with in the intervening valley, to which position they have subsided between parallel lines of dislocation. Many other heights in Europe are similarly defined by vertical faults. The mountains referred to consist mainly of more or less highly folded rocks, crystalline schists, and granitoid masses, and they usually appear as abrupt elevations overlooking undulating low grounds. To these mountains further reference will be made in the sequel.

Strongly differentiated from dislocation mountains are the so-called laccolith mountains. These are more or less prominent gibbosities or dome-shaped bulgings of the crust, caused by the intrusion underneath of molten matter. The latter, instead of breaking through the crust and building accumulation mountains or volcanoes has insinuated itself between the strata

and opened for itself a chamber by lifting all the superior beds (Fig. 12). The best examples are those of the Henry Mountains, described by Mr. Gilbert. Mountains of this class may occur singly or in groups, or, as in the case of the Elk Mountains of Colorado, they may extend in more or less continuous ranges.

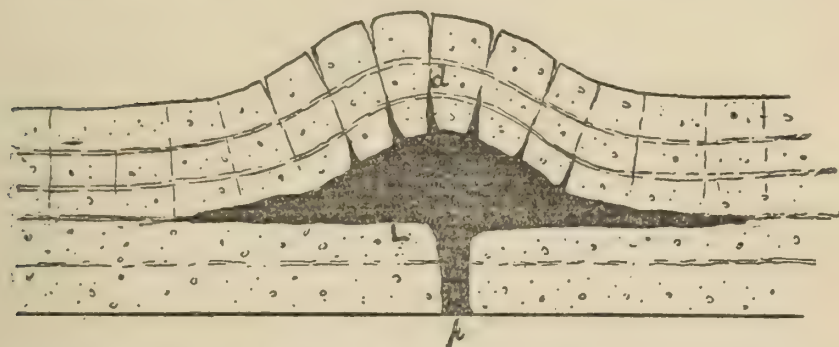


Fig. 12. *Diagram of Laccolith Mountain.* *l*, Laccolith ("stone-cistern"); *p*, Pipe or feeder; *d*, Dikes intruded into overlying beds.

We have delayed so long over the structure and origin of tectonic mountains that our study of relict mountains must be somewhat brief. In this class of mountains form and structure rarely or never coincide. The rocks of which they are composed may be horizontal, inclined, or highly folded and contorted; they may be of aqueous origin, or they may consist of igneous masses of any kind, or of crystalline schists; or every variety of rock and rock structure may occur together. Although relict mountains may occur as more or less isolated masses, yet as a rule they form groups or aggregates, ranging in height from mere monticles up to elevations of several thousand feet. Generally speaking they show fewer peaks and ridges than folded mountains, and their declivities upon the whole are not so steep. If we compare them with the youngest ranges of folded mountains this contrast is striking enough, but in general aspect and configuration certain regions of relict mountains are hardly to be distinguished from

highly denuded tectonic ranges. From the fact that the configuration of relict mountains does not coincide with their structure, it is obvious that the shape must be the result of erosion and denudation. The mountains, in fact, have been carved out of high plains or plateaus. But although they show no concordance between external form and internal structure, everywhere we find the influence of the latter supreme in determining the contour of the surface. Thus plateaus of horizontal strata tend in time to be cut up into flat topped and pyramidal mountains, as in the Colorado district, and many another elevated tract both in the old world and the new (Fig. 13). But when a land is built up of strata that dip at low angles in some particular direction the relict mountains carved out of such a region take a different shape. Long lines of escarpment now appear,—each formed by the outcrop of some more durable rock. And with every change in the direction of dip a corresponding change takes place in the trend of the escarpments; thus showing how closely external form depends upon geological structure. The same relation obtains when strata, instead of dipping steadily in one direction, are arranged in a series of open undulations. Here again the outcrops of the relatively hard or more durable strata determine the position of the heights, which do not coincide, as might have been supposed, with anticlines or saddlebacks, but rather with synclines or troughs. Indeed we may say that in districts which have been exposed to denudation for protracted periods, the position and

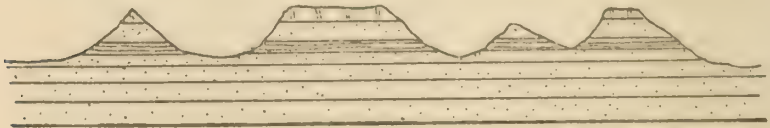


Fig. 13. *Relict Mountains carved out of Horizontal Strata.*

configuration of hills and mountains are determined partly by the rocks themselves and partly by the mode of their arrangement.

For just as some rocks are more durable than others, so there are geological structures which offer a stout resistance to denudation, while others succumb more readily.

Plateaus are frequently composed of highly complicated strata,—the beds dipping at all angles, and the structures generally resembling those which have been described as characteristic of folded mountains. Many of the elevated plains of Europe, for example, show these arrangements,—they display the internal structure of folded ranges, while externally they have hardly a single feature in common with the latter (Fig. 14). Obviously, such regions have passed through strange geographical revolutions. Their structure convinces us that there, over the site of what are now plains and plateaus, great ranges of folded mountains formerly extended. In the course of time, these have been swept away and the whole area gradually reduced to sea-level. At a later stage the same region has been converted into a plateau, and once more has experienced great denudation. To such an extent, indeed, have many plateaus of this kind been eroded, that their plain-like character is well nigh lost. They have been carved into rolling uplands,—into regular ranges or irregular groups and masses of relict mountains, the configuration and distribution of which have been determined very largely by the nature of the rocks, and the mode of their arrangement. Hence in some places the mountains extend in the direction of the outcrops, forming more or less regular ranges. In other places, again, owing to the presence of confused and complicated structures, the heights may exhibit little or no trace of alignment, although it is obvious



Fig. 14. *Relict Mountains carved out of Contorted Strata.* [Section of a portion of the Southern Uplands of Scotland ; after Peach and Horne.]

that in this case as in that of escarpment ranges, the position of the mountains has been determined by the nature of the rocks and their arrangement.

Enough has now been said to make it clear that relict mountains may show considerable variety both as regards form and grouping. A plateau of horizontal rocks is cut up in time into irregular groups of flat topped or pyramidal mountains and ridges. Sometimes these heights are more or less closely aggregated; in other cases they may be isolated,—separated one from another by narrower and broader areas of low ground. In the case of gently inclined strata on the other hand, mountains tend to be developed along the outcrops, and often present the aspect of successive parallel lines of escarpment,—the width of the mountain-ridges depending partly on the thickness of the more durable strata and partly on the angle of the dip or inclination of the beds. As the angle of dip increases, the breadth of the high ground diminishes, until the strata become vertical, and then the width of the ridge is approximately proportional to the thickness of the hard rocks of which it is composed. It is only when the outcrops run thus persistently in one direction that relict mountains assume the form of successive ranges. When the strata are horizontal, or when the geological structure is very complicated, such alignment is rarely conspicuous,—the mountains usually occurring in irregular groups.

Having now shortly described the more important kinds of tectonic and relict mountains, with special reference to their structure, and come to certain more or less definite conclusions as to the immediate cause or causes of that structure, we have still to trace the story further back. But this, we shall find, is a much harder task. It is not difficult to read the meaning of many kinds of structure. No one, for example, has any doubt as to the mode of formation of a volcano,—its structure clearly indicates a process of accumulation at the surface of materials ejected from below. Not less clearly does the structure of

deformation mountains show that all these owe their origin to crustal movements of one kind or another. Nor is the tale told by our relict mountains less readily understood; their structure proves them to be merely the wrecks or remaining portions of ancient plateaus. But while we may feel confident of the truth of these general conclusions, it is quite certain that they do not exhaust the question of origin. There are still deeper problems to be solved than any I have yet touched upon. What is the source of volcanic action? Whence comes molten lava, and what force raises it to the surface? By what process are rocks flexed and fractured? What is the cause of the lateral thrust which has obviously induced the phenomena so well displayed in our folded mountains? And how have normal or vertical dislocations of the crust been effected?

[TO BE CONTINUED.]



THE X-RAYS IN MEDICINE

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IN the beautiful university town of Würzburg, Bavaria, in December, 1895, Professor Roentgen announced the discovery of a new form of radiation to which he gave the name of X-rays because the nature and properties of the light were not well known.

The statement that the bones of the hand of a living person could be made visible was received throughout the civilized world with amazement, unbelief, and curiosity. The matter was quickly taken up by the daily press, and professors of physics in many universities were applied to for information concerning this marvellous phenomenon. It happened that one of the New York papers telegraphed the announcement of the discovery to a professor in this country who had in his laboratory more than thirty of the Crookes' tubes similar to those with which Roentgen had produced the X-rays; and this professor, in order to test its validity, excited one of these tubes with a suitable electric current, and, succeeding in generating X-rays, endorsed the new discovery. It is a curious circumstance that subsequently he had occasion to try all the Crookes' tubes in his collection, in order to obtain X-rays, and with no one of them did he succeed except with the one first tested. This occurrence shows how nice must be the conditions in a tube that is to be used for this purpose, and also indicates

that the apparatus for generating X-rays was already in existence when Roentgen made his discovery, and that the labors of many scientific men had contributed towards it, and had put him in the position to take the one step further. These details are given to correct the impression that the discovery of the X-rays was an accident, and, further, to illustrate the advantages of well equipped laboratories for investigation even when estimated by the standard of practical value.

Following on the heels of the discovery and its crude adaptation to medical and surgical purposes, came reports of burns that patients had received on exposure to the X-rays. In the early days these burns sometimes occurred because the Crookes' tube, on account of the inefficiency of the apparatus and lack of knowledge on the part of the practitioner, was placed too near the patient and kept there for too long a time; but we all know that we may burn our hands if we hold them too near a lighted candle, and yet we are equally aware that there is no danger in reading by its light. The popular idea, which still holds, that it is dangerous to be X-rayed, is due to the inexperience and lack of care of some persons when using this new form of radiation. At the Boston City Hospital, where thousands of X-ray examinations have been made during the past four years, no one has ever been burned or received any injury from them. Moreover, the experience that we have had at this hospital is not exceptional. The total number of accidents that have occurred is small even including those that took place in the beginning when the simple and necessary precautions now used were not always taken. The means by which any injury may be avoided are now generally understood; and better forms of apparatus are to be had, so that there is no risk whatsoever of any untoward effects resulting from X-ray examinations if they are properly carried out.

This new method for examining patients was taken up by many medical men, but they received a comparatively slight return

for a large expenditure of time and money, as well as of patience in trying to understand and control the vagaries of an imperfect apparatus, and some, therefore, gave it up as impracticable; others, however, persevered, and devoted much time to obtain good apparatus and to teach themselves how to use it. This knowledge can be gained only by the careful and systematic examination of a large number of patients, and the recording and comparison of the appearances seen. It will be easily inferred that few medical men would have this opportunity, or if the opportunity were open to them, would care to embrace it. Many members of the profession are now only beginning to employ this method because they have not understood how to use it, and suitable apparatus has been difficult to procure. A good deal of photographic work has been done outside of the profession, by those who have learned the technique sufficiently to take photographs in surgical cases.

The possibilities of the X-rays were at first exaggerated by many, for at that time those who were so inclined could give loose rein to their imaginations as their minds were unembarrassed by the facts that have since been accumulated. This undue estimate was followed by the present popular and wide-spread misconception that the usefulness of the X-rays is largely limited to pointing out the location of bullets and of fractures; the extent of their usefulness in medicine and surgery is not yet generally appreciated, and it is my purpose to endeavor to indicate their value in this direction, and to put before the reader the results of some of the work done during the past four years by physicians and surgeons in various countries, but chiefly in Germany, France, England, and America. But before going further it is necessary to give a brief account of the properties upon which the usefulness of the X-rays depend.

First. They act on a photographic plate like ordinary light.

Second. They excite wonderfully brilliant fluorescence in certain substances, which disappears instantly as soon as the X-rays are

cut off. This property is utilized for medical purposes by means of a fluorescent screen, which is made by spreading on a piece of cardboard a thin and even layer of properly made crystals of tungstate of calcium, or of platino-cyanide of barium.

Third. These rays pass readily through substances light in weight such as cardboard, wood, leather, clothing, paper, fat, muscle, and skin, but with more difficulty through heavy substances such as bones, and all the heavy metals. This characteristic of the X-rays demonstrates that our ideas concerning the transparency of objects must be modified and adapted to the form of radiation under consideration.

If a Crookes' tube from which the X-rays are radiating is placed on one side of an arm, for example, and a photographic plate on the other, it is obvious that this plate will be acted upon most strongly where most rays fall upon it, that is, opposite the soft parts (light in weight), and least where fewer rays strike it, namely, opposite the bones. Therefore, when the plate is developed, there is a contrast between the soft parts and the bones; and in the best X-ray photographs, the structure of the bones is seen in beautiful detail. The outline of the skin, fatty tissues, and muscular tissue may also be differentiated; and sometimes even the outlines of the blood-vessels may be seen in the negative, although they may not always be visible in the print. It is interesting to note that, as the photographic plate is wrapped in yellow paper, the X-ray photograph may be taken in broad daylight, because the paper opposes no obstacle to the passage of the X-rays, although it protects the plate from the action of the ordinary light.

If a fluorescent screen is used instead of a photographic plate, the picture produced upon it is the result of the difference in the absorptive power of different substances, just as was the case when the plate was used. The amount of light falling upon the different parts of the screen varies with the obstruction offered to the rays by the different substances interposed between the source

of light and the screen; and thus, as in the case of the photographic plate, contrast is produced. The fluorescence described can be seen only in a dark room; and, therefore, work with the fluorescent screen, unlike that with the photographic plate, must be carried on in a room from which nearly all light has been excluded. If a large fluorescent screen is placed over the chest, for instance, the shadows of various parts are seen. The breast-bone, back-bone, collar-bone, and the ribs cast dark shadows; the heart also casts a shadow, and its outline, especially that of the left border, is conspicuous in the picture and its pulsations can be followed on the screen. The lungs give the high lights because they are filled with air, which is easily traversed by the X-rays; their movements in respiration can be watched on the screen as can the pulsations of the heart. Thus by means of the X-ray photograph or the fluorescent screen, or, in some cases, by the use of both, a shadow picture of the body in health can be obtained and compared with that found in disease.

Let me illustrate first the aid given by the X-rays in surgery. The most obvious example is the detection of foreign bodies such as bullets or pieces of glass. Heavy metals, being denser than the tissues composing the human body, cast a darker shadow, and their presence is, therefore, detected by contrast; thus a bullet may be exactly located and the patient saved the pain of probing, for the X-rays show the surgeon just where to cut, or indicate clearly to him that the position of the bullet is such that it is best left undisturbed. In like manner the location of bits of glass can be determined, for although ordinary light passes readily through this substance, it is not easily penetrated by the X-rays; wood, on the contrary, offers so little obstruction to the rays that splinters of this substance could not be seen.

Next in order comes the recognition of fractures. The X-rays aid the surgeon in this field by pointing out the exact position and nature of the fracture; and in some cases demonstrate that a fracture is present that had not been recognized before an exam-

ination was made with the X-rays; while in others they show that no fracture exists where one was thought to be present,—these cases are not common, however, as the usual methods generally suffice to make the diagnosis; but some fractures of certain of the smaller bones, for example, have not always been recognized in the past, and the pain they caused was attributed to another cause. Moreover, the X-rays can show details which it is not possible to obtain in other ways.

The X-rays also are useful in pointing out the diseases of the bones in which their shape or their chemical composition is changed. To understand the manner of action of the X-rays in this latter case, it is necessary to appreciate the influence that the chemical composition of a given substance has upon its permeability by the rays. The bones cast a shadow on the fluorescent screen, or are seen as dark objects in the X-ray photograph, because they contain mineral salts which obstruct the rays, and as these are not present to any extent in the soft tissues, contrast is produced. In certain diseases the amount of these salts in the bones is much less than that found in health; and, therefore, the shadow cast by the given bone or bones is less marked than when they are in a normal condition and thus disease is indicated. A painful spot in a bone, which may at first be attributed to rheumatism, especially if the pain is near a joint, or to a recent injury, may be shown by an X-ray examination to be due to a change in the bone itself. In hip disease of children, for instance, the X-rays afford a means of recognizing the conditions present more clearly than has been possible by other methods of examination.

X-ray photographs can make quite clear the difference which exists between certain diseases affecting the smaller joints and the parts near them, and enable the physician to distinguish between enlargements of the joints due to changes in the bone or to the deposit of certain salts near the joints, as in gout.

The detection of calculi by the X-rays offers another illustration, in a different field, of the effect of the chemical composition

of a substance. Some calculi are made up largely of mineral matter; and, therefore, cast a shadow on the photographic plate, whether in the kidneys, bladder, or other parts, and thus their presence is revealed to the surgeon: others have little or no mineral matter in their composition; and, therefore, cast a shadow very little or no darker than that of the soft tissues surrounding them, with the result that they can only be recognized with great difficulty or not at all. Gall-stones, another form of calculi, contain only small amounts of mineral matter and, therefore, their presence would only be recognized with difficulty if at all.

I have said the X-rays indicate that a bone is diseased by showing that its outline is changed. It is not uncommon to find that persons who complain of localized pain in one or both feet, and attribute this pain to rheumatism, or some trouble with the joint, or to a blow of some kind, are in reality suffering, as the X-rays show, from a slight bony growth called an exostosis, which can be relieved only by mechanical and not medical treatment.

The foregoing illustrations serve to indicate the lines in which the X-rays aid the surgeon, and their many applications need not be dwelt upon in detail. The X-rays can point out the exact position of a bullet or of some calculi; or show with marvellous detail the condition of a bone, whether it is broken or diseased, making plain in the latter case changes brought about in it by tuberculosis, cancer, or rickets; or they can give better assurance than has been possible hitherto that a given bone is neither broken nor diseased, as was suspected.

The X-rays have also proved themselves valuable in dental surgery; they can show the presence of the teeth in the jaw before eruption takes place, or that the permanent teeth will always be lacking; can assist in locating an abscess in the jaw; demonstrate that neuralgia is sometimes due to an unerupted tooth, or that a certain inexplicable pain has been caused by a piece of a broken instrument remaining in the tooth.

My own interest in the X-rays was aroused because I believed they might be made useful in the special field in which my work lies; namely, diseases of the chest; and I will illustrate their value in medicine by some examples of their use when the lungs or heart are affected.

But first a few words concerning the usual methods of examining the chest will help to bring out and emphasize the part played here by the X-rays. The physician looks at the patient's chest and notes how he breathes; he likewise observes the sound returned when the chest of the patient is struck, or, to use the technical term, percussed. If the lungs are healthy they have a given resonance, a variation from which is an indication of disease. The note obtained by percussion is chiefly due to the conditions existing near the chest wall, any changes that take place in the centre of the lung only would not especially affect this note. The physician then listens to the respiratory sounds. Here, too, he can recognize best what is going on near the chest wall, and less well, if at all, what is present in the central portion of the lungs. These methods, namely, percussion and auscultation, have been pursued for many years and give very valuable information; but there is abundant opportunity for another and an independent method, even if it lent nothing more than confirmatory evidence; the conditions present in the chest often involve serious changes in the daily life of the patient, the abandonment, perhaps, of a career auspiciously begun, or separation from friends or relatives; a certain diagnosis, therefore, is of the utmost importance, and it is not only necessary that the deductions drawn from the observations made by the physician should be wise, but that the observations themselves should be as accurate and complete as possible. If, then, we get evidence pointing in the same direction from two independent methods, it may more than double the value of that obtained from one method alone; but my purpose is to show that X-ray examinations can do more than support, they can in certain instances anticipate

other methods, and give us information in some diseases of the chest that is beyond the reach of the older ones. With these considerations in mind, and with some appreciation of the limitations of the present methods, we are prepared to look at the manner in which the X-rays aid us.

The examinations of the chest by the X-rays can be carried out in two ways, as already indicated; namely, by the X-ray photograph, or the fluorescent screen. The latter is the better way for diseases of the chest, because we can watch on the screen the movement of the diaphragm, see the lungs expand and contract in breathing, and then by comparing one lung with the other, ascertain whether or not one is deficient in its function; we can also follow the pulsations of the heart, and note how much and in what direction this organ changes its position between expiration and full inspiration. In health the movement is seen to be considerable, but it may be modified if the heart or neighboring organs are diseased. It is satisfactory to add that these examinations are not only entirely without risk to the patient, but also if properly carried out may be restful rather than fatiguing to him.

The physician must be familiar with the appearances seen in the normal chest in order that he may be in a position to detect any variation from the normal, and that he may be aided in determining what disease, if any, is present. The lungs in health, as already indicated, form the brightest part of the picture of the normal chest. As a rule, when a lung becomes diseased, for instance, in tuberculosis or pneumonia, it is denser than normal; the diseased portion obstructs the rays and, therefore, a shadow is cast on the screen where it would be bright if the lungs were healthy; the lungs may also expand less fully than in health, and this diminished movement may be seen on the screen by watching the rise and fall of the diaphragm and noting the extent of its excursion. It is obvious that an increase in density in the central portion of the lung would obstruct the rays as well as if

it were near the surface ; and, therefore, a shadow would be cast on the screen in either case. Herein lies one of the advantages which an examination by the X-rays has over the usual methods of examination, namely, auscultation and percussion. On the other hand, in some diseases of the lungs, the brightness of the pulmonary area is seen to be unnaturally heightened on the screen ; thus an X-ray examination points out the variations from the normal in either direction and shows whether the lungs are more dense or less dense than normal. In many diseases of the lungs only one is at first affected, and, therefore, the physician has an opportunity of comparing one lung with its fellow, and of following their respective contractions and expansions through a variety of respiratory exercises.

Let me illustrate the value of X-ray examinations in diseases of the lungs by the consideration of their aid in tuberculosis, or consumption, as it is popularly called. This disease is very prevalent and fatal, one eighth of all deaths being caused by it ; in Massachusetts alone, according to the State Board of Health, about six hundred persons out of every one thousand that die between twenty and thirty years of age, die of pulmonary tuberculosis ; but the chances of recovery are large if the disease is recognized in season. This point is shown by the recoveries we see in our midst and by the indications of an old and healed tuberculosis of the lungs found in tens of thousands of persons who have died of some other disease. The vital importance, then, of the earliest possible diagnosis of a disease susceptible of successful treatment in its early stages is obvious.

Pulmonary tuberculosis is indicated both by its effects upon the system in general,—the patient becomes “run down” as we call it ; and by its effect upon the lungs. The recognition of changes in these organs in the very beginning of this disease is difficult by the usual methods. It will, therefore, be appreciated that physicians may be obliged to delay the announcement to the patient of so serious a diagnosis when it is based on one

method of examination only, and to wait until their apprehensions become stronger and the diagnosis is more assured. Valuable time is lost by this delay, which might be avoided if the slight signs found by auscultation and percussion were confirmed by another method; as evidence from two independent sources would warrant immediate treatment. The X-rays lend this confirmatory evidence and they do something more; by their means we may in some cases detect signs of disease before they are obtained by the older methods of examination. X-ray examinations made for the purpose of learning the condition of the heart, for instance, have given indications of tuberculosis of the lungs when it had been otherwise unsuspected.

The following considerations will further aid us to realize the importance of an early diagnosis. In the first place, the patient has far greater chances of recovery if he begins to take care of himself at the earliest possible moment; and, second, the time needed for successful treatment is much less if the disease is only beginning than when it is further advanced. Six months may suffice to restore the patient in the early stages, whereas if treatment is delayed, and the disease has meanwhile progressed, two years may be required. It is plain that many persons can give up a comparatively short period to treatment who cannot afford a more protracted one; the family and friends of the patient can often aid him for a short time, but would find it impossible to continue this assistance two years.

This question of early diagnosis affects the public as well as the individual, for it is evident that the day is near at hand when governments will feel more strongly the responsibility of giving patients suffering from this disease the best care. It is obviously more economical to fill a hospital containing one hundred beds, for example, with two sets of patients during the year than to keep one set two years, for instance. And, what is still more important, the chances of recovery are much greater, as just stated, if patients are admitted in so early a stage that a few months of

treatment will suffice. Another point to be considered, when enumerating the advantages of an early diagnosis, is the benefit derived by the healthy part of the community if the diagnosis is made in the beginning of the disease. The patient can be warned to take simple precautions which will protect normal individuals who are thrown with him.

The X-rays are also serviceable in consumption because they give us another method for determining the extent of the disease. This knowledge is important, and is not always as fully appreciated by the usual methods as by an X-ray examination. I have known patients to be sent on long, wearisome, and fruitless journeys, only to return home to die after a few days or weeks, when the X-ray examination had shown it was best for them to remain at home. The X-rays are thus a very practical help because they may indicate whether it is best to advise the patient to attempt relief by change of environment or climate, or wiser and more humane to tell him it is worse than useless.

The results of an X-ray examination of the lungs should always be considered in connection with other methods of examination ; and, therefore, should be made by those who are trained in the detection of this disease, for otherwise the signs observed might not be given their proper value.

One more illustration of the aid of the X-rays in the diagnosis of the condition of a vital organ, namely, the heart. Medical men universally recognize the fact that a knowledge of the size of the heart, when this organ is diseased, is of the utmost importance. Examinations made at autopsies, and X-ray examinations, show that our older methods of determining the size of the heart may be at fault in some cases. They may not show an enlargement that exists; or, on the other hand, they may suggest an enlargement that is not present.

On the contrary, when the lungs are normal, and, therefore, the portion of the fluorescent screen over them is bright, the shadow of the heart is well seen, and is practically of the same

size as the heart itself, if the physician takes the simple precaution of placing the Crookes' tube at a proper distance from the patient. Thus by means of X-ray examinations, we may determine more accurately than ever before, the size of this organ. Its pulsations may also be followed, and, in some diseases, their variation from the normal may be observed on the fluorescent screen.

There are many active men in this busy country of ours whose hearts are pushed beyond their strength, and the diseased condition thus induced often shows itself by a change in the size of this organ. If such changes are recognized early, much good may result. The X-rays give us a means of obtaining this information earlier than formerly, and thus the patient may be warned of his condition, in time to adapt his activity to the capacity of his heart before that organ becomes suddenly and, perhaps, completely overtaxed.

The X-rays also sometimes give information of the diseased condition of the heart as well as of the kidneys by the appearances seen in the lungs, and the physician may be thus prompted to timely and suitable treatment, and may be assisted to determine when the treatment has accomplished its purpose.

I will not dwell further upon the valuable information which the X-rays give us about the heart when a careful examination of this organ is made by their aid, because a fuller discussion of this method would necessarily be more technical than seems appropriate for an article of this character; and my desire is simply to point out their value in this direction.

I will mention one more important service in diagnosis before I touch slightly on the aid of the X-rays in treatment. In the chest there is a large blood-vessel about as thick as the thumb, which distributes the blood from the heart to other parts of the body. This blood-vessel sometimes becomes weakened and dilated, as a garden hose may do, and this condition may be recognized by the X-ray examination when it eludes detection in

other ways ; on the other hand, a patient may have the symptoms which frequently accompany such a dilated condition of this blood-vessel and yet are not caused by it, and an X-ray examination can demonstrate that the suspected blood-vessel is not abnormal in size, to the great relief of the patient and his physician.

The use of the X-rays as a curative agent is widely different from its use as an aid in diagnosis and requires special precautions. Eczema and lupus, the latter often disfiguring the face, and sometimes unrelieved by our former methods of treatment, are the diseases in which the X-rays have been most commonly used thus far as a method of treatment.

I hope I have made two points clear : first, that X-ray examinations for purposes of diagnosis can be made without the least injury to the patient if carried out by those who understand the precautions to be taken ; second, that they are a distinct addition to the older methods in the hands of the surgeon and the physician. Like any other method, they have their special field of usefulness and are not of value in the diagnosis of all diseases.

One further point should be emphasized in regard to the use of the X-rays. Were they only useful in detecting serious disease and in showing that it had made great advances, the life of the physician using the method would be sad indeed ; but fortunately there is the other side. They are an aid in making an early diagnosis, when there is good hope from treatment ; and they also give the physician, in some cases, the great satisfaction of assuring his patient that his fears are groundless and that the serious disease suspected by him, or by the physician under whose medical care he has been, is not present. Every addition made to our methods of examination which gives us a more perfect, and an earlier knowledge of the condition of the body, aids preventive medicine ; and will more and more make it wise to submit ourselves to a medical examination at suitable intervals, as we now do in the case of our teeth, with the result that often a little immediate treatment will set all to rights.

The limitations and uses of the X-rays not being generally understood, X-ray examinations may, and probably will, be used to play upon the imagination and credulity of patients. To avoid this danger it is well for persons desiring to be examined by the X-rays to bear in mind that in medical cases, this method must be used by a physician, and in surgical cases its results must be interpreted by a surgeon. It is to be expected that the value of these examinations will not be fully appreciated for some time; because, on the one hand, few experienced physicians have learned to use the apparatus; and, on the other, many of those persons who understand the apparatus have not had a thorough medical training, and, therefore, cannot give the results obtained by an X-ray examination their just value in the group of signs and symptoms upon which a diagnosis is based. But this not unnatural condition of things is constantly improving.



THE PUBLIC LIBRARY IN THE UNITED STATES : SOME RECENT PHASES AND TENDENCIES

HERBERT PUTNAM, *Washington.*



THE President of the American Library Association, in his address at its last conference, referred to the past decade as having witnessed the inception of numerous enterprises which are "the striking features of present-day librarianship." "State library commissions; interstate, state, and district associations; library training schools; travelling and branch libraries; travelling pictures; library advertising; children's rooms; rooms for the blind; access to shelves; coöperation with teachers; coöperative cataloguing; inter-library loans and exchanges";—all had had their inception or chief development since 1890. He included also as notable events of this decade "the general erection of superb library buildings; phenomenal gifts from philanthropists of library buildings and endowments; and compulsory library legislation."

If we extend the observation to the past quarter century, we shall include all that is most remarkable in the development of the public library of the modern type since its establishment in 1852; provided, however, that we do not overlook the decade ending in 1877, during which the Boston Public Library, under the administration of Justin Winsor, entered upon those schemes for popularizing the book and broadening the constituency of readers, which were the initiative for all such efforts since that time.

In such a survey what first seizes attention is the advance

which is evidenced by mere statistics. The public library received its legislative sanction only fifty years ago. It was then, however, accepted as a proper auxiliary and complement to the public school, as an institution justly to be maintained by the community as a whole for the benefit of its members. Once so accepted it has followed naturally in the wake of the common school. It is the next thought of the community which—having provided its means of subsistence, health, order, and intercourse; having laid out its streets and parks; introduced its sewers and water supply; established its police and fire departments and judiciary; and attended to the other matters purely protective or regulative, including provision for the elementary education of its youth as indispensable to its own security—proceeds to consider means for recreation and self-improvement. In the older community the public library is a necessity because the service of books is familiar and a matter of course. The newer ardently adopts it as a means for reaching the level of the old, in the hope that, through books, it may secure the art, the science, the history, which to its senior have come through life itself.

And its general acceptance as an institution essentially beneficial has enthusiastically affected philanthropy. Men of wealth, whose wealth has come through the general development, establish a public library in grateful recognition; men considering a memorial, fix upon a library building as a most advantageous memorial. It is, they perceive, prominent, permanent, and active in a service which is continuing and of general benefit. Twenty-four million dollars in gifts to libraries within the past ten years! An impressive total indeed! How far such gifts have been diverted from religious enterprises, or from other educational institutions, is not capable of estimate. The volume of gifts to missions and to colleges does not seem to have diminished concurrently. There is, however, the impression that the establishment of a free library both tends to good morals and advances education, thus combining benefits which any other form of benefaction may confer only in part.

But the establishment of libraries has not been left wholly to local initiative or to individual philanthropy. It has recently been made the concern of the state itself. Commissions have been created whose purpose is the extension of state aid to local effort. These commissions (of which the first was established in 1890) now number no less than seventeen. They issue publications which illustrate by example how, most economically and effectively, libraries may be established in towns and villages; they excite local effort; they are prepared to aid with counsel and suggestion; and in some states they are authorized to aid with a definite grant,¹ which supplements the local appropriation.

In certain cases the interest has gone further, collections of books being maintained at the expense of the state and loaned out for the use of the local communities on request of the local authorities. This is the system of "travelling libraries," so-called, which has had its fullest development in New York, but has now extended in some form to no less than forty-two states. The travelling libraries are at present only in part maintained at the expense of the state. They are apt to be initiated and for a time supported by individuals; but with the expectation that the burden will ultimately be taken over.

That the state should extend aid in the establishment of local libraries while it leaves wholly to local effort the establishment of common schools, implies, not that the service of libraries is one of more general concern, but that it is a service more nearly allied to those higher branches of education which the smaller communities cannot be expected to undertake without suggestion or subvention. It recognizes also that there are communities, as individuals, to whom the service of the book is unfamiliar; and in the travelling libraries it recognizes that this service may be performed by a collection of books for different communities in repetition without diminution of capacity. Ordinary instruction can be multiplied only at a proportional increase of expense.

(1) Usually of a hundred dollars—in books.

But a book may travel from town to town, rendering in each an equivalent service, with no multiplication of initial expense. And by the system of travelling libraries a thousand communities may secure the benefit of a thousand books at what to each is little more than the cost of one. The provision for the larger area, whatever its constitutional objections, is, therefore, a provision in the interest of the general economy.

Small wonder, then, that with such influences at work libraries have multiplied in the United States,—multiplied in a ratio that is progressive. The total number established between 1875 and 1896 was 3,546, as against 2,240 established between 1850 and 1875. In 1876 the number reporting 300 volumes or more each, was 2,039; in 1896 they had become 4,026; and their contents had in the meantime nearly trebled. The total number of volumes reported in 1876, by 3,647 libraries having 300 or more each, was 12,276,964; the total number reported in 1896, by 7,191 libraries, was 34,596,258; 567 of them reported in 1896 really owned to the value of \$33,000,000; and 605 of them endowments exceeding \$17,000,000; aggregates both of which must have enlarged considerably since that time. For, during the past decade alone, there have been erected or begun, five library buildings costing more than \$1,000,000 each, whose aggregate cost will have exceeded \$15,000,000;¹ and various others, each of which will represent an expenditure of from \$100,000 to \$700,000 each;² while buildings costing from \$5,000 to \$100,000 now dot the country. These latter very largely, and the more costly in part, are the result of private gift.

(1) The Library of Congress \$6,400,000 (with land \$6,950,000); Boston \$2,500,000; Chicago \$2,000,000; New York \$2,500,000 (a minimum); Columbia \$1,250,000; Pittsburg (Carnegie) \$1,200,000 (chargeable to Library).

(2) For example, Madison, Milwaukee, Newark, Princeton, Providence.

The growth has not been even ; it has been disproportionately great in the east, middle west, and west ; but it is now following the new industrial activity in the south, particularly in Georgia and Tennessee.

But the mere multiplication of units is not development. As to this one must consider characteristic and function. And, in the recent progress of American libraries, there is much significant of change in each.

First. The mere *activity* itself. The motive of the old-time library was accumulation ; the motto of the present is use. The former was content to respond to demand ; the latter seeks also to create it. The constituency of the former was in consequence only the student-scholar, who knew the value of books and had positive need of their service ; the constituency of the latter has no admitted limit within the legal area. For it conceives the possible service as extending to every man, woman, or child whom any worthy book may serve in any worthy way. And if the possible service, then a correlative obligation. For, with the recognition of the service, has come a sense of positive duty. The desire for the book is not to be allowed to be passive until it expresses itself ; it is to be excited. The book itself is not to be allowed to lie passive until specifically summoned (and what so passive as a book unused !); it is incessantly to be urged into notice. The collection of books is not to remain an aggregate of units ; it is something organic, which is to be manipulated into a thousand different forms of service, and made to answer a thousand varying needs.

Hence, this prodigious "*activity*"; hence, the branch libraries, which feed districts remote from the main collection ; hence, the delivery stations, which project the main collection itself into such places ; hence, the "open shelves," where the books may make their direct appeal ; hence, the various schemes of "advertising," whose purpose is to excite from their lethargy the people who do not appreciate that there is a library, that it is theirs and free,

or, perhaps, as yet do not even realize that books may be their need; hence, the huge consequent "circulation for home use": 5,000 volumes from a single library in a single day; 1,500,000 in a single year; 40,000,000 books a year from the libraries as a whole. And not merely books, but now prints, photographs, lantern slides, and other forms of illustration; lectures, talks, reference lists on timely topics, bringing to the surface material submerged; reminding, too, the hurrying reader that besides the drift which the current brings nearest him, there are eddies, and a shore, and the wreckage there of many opinions, yet also much which has taken hold and is fast, and permanent, and still sound. Activity—incessant—and popularization, the most obvious characteristics of the American public library to-day.

Second. The work with the children. It was not for the child that the public library was established. Fifty years ago there was not a literature for children that could form the material of its service. Then came a literature, which, though designed for the young, was not fully suitable for the service; the literature which for a score of years stocked the Sunday School Libraries. Then other books which, unsectarian, non-religious, were yet obtrusive in moral, inferior in literary style, and lacked either useful suggestion or wholesome stimulus. But finally came the recognition in literature of childhood's needs; and with it thousands of books useful, and wholesome, attractive in form, and skillful in style. With them came the opportunity of the public library to serve the young. And it has been utilized. In every library children's books in generous supply; in most, special reading rooms for children, special lists of "best books"; specially trained assistants, even specially designed furniture. And the relation is not left to chance. It is developed by coöperation with that other institution where the children are subject to organization and control, the public school. Books for "supplementary reading," books for research and theme work, books for recreation (with incidental but not obtrusive instruction), and

pictures for all three: a very profusion of incitement and opportunity. With it also a hospitality which the child had little reason to expect in the formal library of the olden time,—sympathy, friendliness, interest, good cheer. The library assistant who is to greet him now must, it is said, “be clean and cheerful, and not use long words.” She must also have the “dramatic instinct”; for not merely his wonder and his pleasure, but his interest must be excited. The library is to be made welcome to him and also comprehensible. In other words, the library is to undertake with him the service of true instruction; the service, in a way, of the school, but without formality.

Whether or no this effort finds adequate, direct return, it is justified by its ulterior purpose: to create and train a constituency for the library, which will form its adult constituency of the future. The adult, unfamiliar with books, untrained to the use of a library, is not a promising object of effort. He may be brought to the use of books; but whether he can be brought to the use of the best books, whether his taste can be progressively improved, is more doubtful. If he can be caught while still a child, however, a taste may be engendered, an inclination induced, which will be lasting and genuinely progressive. He may then most easily be taught the uses of a library, and its processes; and may secure a notion of the relation of books to his life and work, which will stand him in good stead forever afterward.

There is reason, therefore, for the belief that for the work of the modern public library which is positive and not merely responsive, the best hope lies with the children.

Third. The informality. An increasing confidence in the general good conduct of the public has led to the removal of restriction after restriction that had for its purpose the mere protection of the books against theft or misuse. In most cities any resident of the requisite age may now secure a library card (entitling him to books for home use), not merely without making a deposit, but without filing a guarantee. At Boston, for

instance, neither is required of the 70,000 persons who hold such cards. Experience has shown that it is not those 70,000 who are to be feared, but the occasional individual whose depredation is deliberate and expert, and cannot be adequately guarded against by any rigor of restriction.

A similar confidence, coupled with the desire to enable the books to make direct appeal, has induced an ever increasing display of them upon open shelves, where they may be handled by the public informally without the intervention of catalogue or attendant. The privilege of access formerly granted to the serious investigator alone, and for serious literature, is now recognized to be even more necessary for the general reader whose interest is to be awakened and whose taste is to be improved. For him, therefore, it extends to the literature that is merely recreative.

Fourth. The variety of the newly adopted functions together with the enormous expansion of the constituency, have necessitated not merely a vast increase of the space devoted to library uses, but elaboration in the design of library buildings and the introduction of mechanism absolutely novel in library affairs. The library building of the older type was simple and undifferentiated (its service was single, direct, and undifferentiated). The modern library building is a highly complex structure, with provision for various departments of work, each specialized yet mutually dependent, and to be kept in a relation that will be organic. There are the "inside" departments,—the Purchasing, Shelf, and Cataloguing,—having to do with the acquisition of the book, its preservation, and its preparation for use; there is very likely a Printing Office and Bindery; there are the Reading Rooms, subdivided into the General, the Periodical, the Newspaper, the Patent, and the Children's; there are the departments of Special Reference,—Manuscript, Music, Documents, Prints, etc.,—each requiring a special equipment; there is the necessary provision everywhere for the reference reader; there is the

special provision (which must not conflict) for the readers who wish to take books for home use; there must be provision for the engineer and janitor force which is to take care of a structure so elaborate; and over all there must be accommodation for the general administration in convenient relation with all the rest.

Fifth. Similar requirements have introduced a new type of librarian. Abroad and in times past the practice has been to select for the conduct of libraries men who had acquired distinction first as authors or investigators, historians, antiquarians, philologists, poets, scientists.¹ Such appointments were a recognition of the scholarship that should be represented in a library. There was, of course, the danger that the proved scholar might not prove an administrator. But the problems consisted chiefly of even development of the collections along lines already defined. They were problems of growth rather than of use. The constituency was limited and homogeneous, and in large part expert. The expenditure was small, and the staff both small and little differentiated.

The modern librarian in the United States may have a variety of responsibilities not customary in times past, and not fully paralleled elsewhere to-day. He may have the practical care and administration not merely of the books, but of "the plant"—grounds, buildings, and equipment,—property interests of the value, perhaps, of several millions of dollars, which must be suitably maintained and guarded against deterioration. He directs the current expenditure of what may amount to over a quarter of a million of dollars annually. He has a larger control than elsewhere in the selection of the books to be purchased, and he purchases

(1) Aristophanes was made librarian of Alexandria because of his superior skill in detecting plagiarisms. Dionysius general superintendent of the twenty-eight public libraries of Rome, was a rhetorician. But without going back so far, we may recall Amyot, DeThou, Lambeck, Ascham, Hume, Leland, Lessing, and Lepsius, and the many contemporary librarians of the continent whose reputation has been acquired in other fields.

them. He selects and in effect appoints his assistants, and they may number several hundred. He must direct, regulate, and discipline a large corps of employees,—a task that has its analogies in any business. He must also create and keep alive among them the humane and helpful spirit, the zeal for rendering service without return, the professional spirit, in short, which has no analogy in mere business. He is himself commonly the representative of the library in its appeal to the appropriating authorities of the city for the funds which are to maintain it. Even if he do not submit its case, he frames it; and, not merely at the moment of request, but throughout the year is expected to sustain a relation of comity with the city authorities which shall secure their interest in the claims of the library when presented.

He is thus the executive officer of a business corporation. As such he has difficult functions in addition to those of safeguarding the collections and of making them useful. And these latter are difficult enough. He must devise methods suited to a constituency indefinite in number, heterogeneous, and mainly inexpert. He must convenience the scholar, and at the same time satisfy the general reader. He must regulate use; but his regulations, while sufficient to safeguard the books and ensure reasonable impartiality of privilege, must avoid the technical extremes that perplex the reader, and the rigidity that makes no distinction between readers of different responsibility, need, or aptitude. He cannot himself be a specialist; but he must be competent to sympathize with the view of the specialists who are his aids, and to appreciate intelligently the recommendations that they lay before him, yet with an independence of specialization which will ensure a reasonable equilibrium in the work as a whole.

The typical present day librarian in the United States,—in the public libraries,—like the typical college president, is not the scholar, but distinctively the administrator. Of the librarians now active in such positions, I cannot name one who is carrying on important historical or even bibliographic research, as is so

commonly the fashion of the profession abroad. Justin Winsor was an exception in combining private research with active administration, but his most important work as historiographer was done after the completion of his most significant work as administrator.

Sixth. The enlarged demands for trained library assistants has induced attempts to frame a system of training which could be inculcated by formal instruction. Initiated by Columbia College (in connection with its library) in 1887, such instruction is now the purpose of four professional library schools offering courses of from one to three years each, and various library classes conducted for shorter terms,—chiefly in the summer months. The graduates of the four larger schools already number over five hundred, the majority of whom have found ready employment in libraries.

This movement will, of course, tend to establish a standard of qualification for an assistant in a library as definite as that for a teacher in the common school;—even though full success in the one position, as in the other, presupposes certain qualities which are purely personal, and a certain education which no merely technical training can give.

Seventh. A remarkable zest in observation, in experiment, in the acquisition of new methods. The old-time library proceeded sedately on its own way, impassive to outside influences, content with its own experience. The modern library dares not be. It is incessantly seeking out and comparing,—even urging,—for it makes propaganda of any discovery of its own which may be generally useful. The American librarian (unlike certain of his brethren abroad or of an era past) recognizes no equality in methods which are different. Either his method is better than his neighbor's, or worse. In the one case he must convince his neighbor; in the other he must convince himself. But an effort to convince there must be. So he has formed associations, with conferences whose purpose is comparison of experience and the

discussion of possible improvements in method; the American Library Association created in 1876 and now numbering over five hundred members; and various state and local associations, at least twenty-five thus far, numbering over two thousand members. Such associations have been formed abroad also, and conferences held. But their programs are given up largely to the archæology of libraries or to historical or merely theoretic bibliography. The characteristic of the American conference is its practical purpose. Its participants seek to secure information of improvements which may be put into immediate use in their own libraries, and to impart what may be of benefit to others; they devise schemes of coöperation which may enlarge the resources of each by having duplication of bibliographic work; and they adopt projects for the promotion of the interest in the public library and for the extension of its field of usefulness. They support two professional journals to the same practical end.

Eighth. Coöperation and Propaganda are characteristics which distinguish the endeavors of to-day from the purely isolated effort of times past. The Library Association maintains a publishing section, which issues indexes, which are the result of coöperative cataloguing, select reference lists on particular subjects with helpful notes in the nature of "appraisals," and tracts which may aid to the establishment and organization of small libraries. That three hundred and forty-three towns in Massachusetts have now public libraries is a matter of relish to the profession which is less than an "infinite relish" only because three towns of Massachusetts still lack them.

Such are certain of the phases of recent library development in the United States. Of which the most prominent are improvement in *methods* (of administration), a greater variety of service, a corresponding complexity in organization and equipment, increase of mere facilities, extension of the constituency, and the

incessant endeavor to urge the book upon classes that will not seek it for themselves and into districts where its uses are unfamiliar. In particular, Activity and Popularization.

But how about the scholar?—what concern for him in all this? Ah! that, indeed, is another matter. To the scholar the recent library movement is even dubious; because it is a movement; and he covets repose. The very aspect of the delivery room of a modern public library has to him something repugnant,—the aspect almost of a railway station,—bustle; the noise of machinery; hundreds of people eager to be hurried to their destination by the shortest route at the least inconvenience. (He knows no shortest route; he is contemptuous of that which is reached without toil). “Freedom of access”? But he had it before. Bibliographic aid? He was in no need of it. Many books to many people? But he has a conviction that one serious book to a serious student may be of greater import to the community than a thousand ordinary books to a thousand ordinary readers. He sees, with despair, an ever greater percentage of the library funds eaten up by administration and mere “facilities”; an ever diminishing percentage available for the purchase of books.¹ The modern library gives equal opportunity for all to become scholars; but where, he asks, does it provide the privilege and the necessary seclusion to those who have become scholars? How is it to provide the books themselves if it is to supply the demand for popular, even for recreative, literature? For there is a definite limit to the funds, and there is none to the demand.

His plaint and his dread have foundation. His needs have not had attention proportional to that given to the needs of the general reader. He profits, indeed, as others, by improved methods of cataloguing, by coöperative bibliographic enterprises, by the

(1) Out of a total annual appropriation of \$275,000 the Boston Public Library is able to assign but \$25,000 to the purchase of books. In libraries of the older type the amount spent for increase was at least equal to the amount spent for maintenance.

greater liberality in inter-library loans. He might profit by the adoption of a scheme of differentiation which should recognize a difference of function, and should restrict each library in the accumulation of material to that appropriate to its particular class. But such a scheme, although often proposed and in principle approved, has not yet been put into practice; the disposition being still for every library to become in scope a universal library to the extent which its funds will allow.

And, on the whole, the situation of the scholar has not, relatively speaking, improved commensurately with the general improvement; for this has been essentially democratic. For the privilege of mere privilege his comfort now lies with the proprietary libraries, a (diminishing) few of which still survive. His needs can be met by the municipal libraries only as these are the recipients of private aid in the gift of collections or of endowments. He has, however, and will have at his disposal, to his increasing advantage, the great accumulations in the university libraries; the collections in the local libraries privately endowed, as the Astor-Lenox, the Crerar, the Newberry; and the possibly still greater central collection in the National Library at Washington, which, maintained by the country at large, exempt from the obligation of popular service to a constituency merely local, may justly expend its energies in the advancement of the higher research.

THE ENGLISH PEOPLE:
NOTES ON NATIONAL CHARACTERISTICS
BERNARD BOSANQUET, *London.*



WHEN the English traveller returns home from the continent, he experiences a change of surroundings such as he cannot have met with at any point of his continental journey. He passes through no bi-lingual frontier district, and notes no gradual transition from one type of population to another. Every detail of life is suddenly transformed, and in many respects he is led to think of the continent as a single country, which, as a whole, contrasts sharply with England. He has to change not merely his money, but the system of reckoning which has served him everywhere abroad; his luggage is not checked or registered; the morning coffee and midday dejeuner, which prevail from Calais to Constantinople and are connected with the habit of siesta, are supplanted by the solid breakfast and lighter luncheon of the men who work from breakfast to late dinner time; the refreshment-rooms, though no longer what Dickens described in "Mugby Junction," seem to have nothing in common with the continental restaurant; and the cuisine, for better or for worse, is an abrupt departure from the type which repeats itself with comparatively little change in Paris, Florence, and Athens. In short, setting aside the English colonies, and to some extent the United States of America (though there the continental ideal has had no

little influence), the every-day routine of the civilized world in general is one thing, and that of England is another. The common architecture of the village and the street shows the same difference. Whatever beauties may survive in favored nooks of England, its streets and cottages of to-day seem wanting in quaintness and originality, in local sentiment and adaptation. The slater will not cut his slates to form a curved junction or roof surface, all is straight lines, regular slopes, a repetition of box-like forms. Anywhere on the continent the eye lights upon quaint or pretty forms, and happy local differences and adaptations. The colors of the English city streets, perhaps from some reason of climate, seem to be necessarily ugly; a plastered tenement house in London is hideous, while a plastered tenement house in Florence, though, in fact, perhaps much more dirty and neglected, is outwardly tolerable, if not beautiful. Perhaps there is a certain sense of proportion, applicable even to the simplest buildings, which the English eye has never learnt, or has forgotten.

In deeper matters it is the same. English Protestantism, whether Anglican or Nonconformist, is a type by itself; may we not say the same of English Catholicism? English Law is neither founded on the universal Roman tradition, nor affected by the Napoleonic Code; the British Constitution, as we are never tired of explaining to the world, is a peculiar and indigenous growth. It is needless to insist further on our starting point. It is this. The first condition of English history, the radical characteristic of the English mind, is Insularity. It is the full significance, both negative and positive, of this condition and characteristic that we desire to develop in the present paper.

It will be well to explain at this point, very briefly, our conception of the Psychology of a People, and our consequent attitude to the problems of racial disposition and of material or economic environment.

By the Psychology of a People we mean the analysis of the mind of a people. And it seems obvious that the mind of a peo-

ple can be nothing else, nor more than, the minds of the individuals who compose the people. But yet the matter is not so simple as it may seem. To begin with, what is the mind of an individual? If we say that it is nothing but his actual consciousness, what he is aware of at any given moment, we hardly do it justice. Suppose that he is an author of repute, who has been writing important works throughout a long lifetime. It is plain that at any moment only a very small part of all the knowledge and construction which these works contain is actually before his consciousness. Are we for this reason to leave them out in making a study of his mind? If he has painted pictures, built houses, engineered railways, or initiated Acts of Parliament, the same sort of difficulty recurs. We cannot seriously study his mind and character without treating these achievements as in some way containing the mental nature of the man. Still more is this the case with anything which is not merely done once for all, but which continues more or less to influence his habitual thought and action, such as his home and neighborhood, his bodily powers, his duties in government, in his profession, or as the head of a family. His mind is of one web with these things, but the amount of them which is at any moment under tension, exerting an appreciable pull upon the consciousness, differs from time to time as much as what we can see at midday and at midnight. So it is, and much more so, with the mind of a people. This is, as we said before, the feelings, will, and ideas of the individuals who make up the people; but it is these (*a*) taken in a certain connection, as explaining the coöperation by which the people's life goes on, and (*b*) considered as including the institutions, more or less permanent, to which the national mind has given rise in its development, and by which in turn it continues to be developed. The coöperating consciousness of individuals, then, with their permanent organs and achievements, is what we have to analyze as the mind of a people. The term consciousness we use in the widest sense. It is assumed that the same

material, the same experience, which looked at in one way are the thoughts, more or less connected together, of any single mind, form in another aspect its interests or purposes, and in yet another aspect its emotions. All this fabric we include under the term consciousness. What we should like to do, if we could, and if space permitted, and what we hope to begin to do in some very small degree, is to show how the tissue of ideas and interests of a set of individuals who form a certain people, explain, or at least help in connecting together that tissue or outward phenomena which we call the national life. It must be remembered, however, that owing to the very nature of a national mind as a sort of microcosm, or world complete in itself, it is pretty certain to mirror in one part or another all emphatic tendencies of human nature. So that there are and have been groups of men and women in England who have immersed themselves in the art and thought of other climates and peoples, and have sometimes set the whole vigor of their English character to the repudiation of English motives and ideals. Every mind has a side on which it feels the glamor of the unfamiliar, and there were ancient Greeks as there are modern Englishmen, who have "heard the East a-calling." Every country, that has arrived at any tolerable degree of sensitiveness and experience, probably tries to reproduce within itself the mind of all other countries in the world. But we mention this feature only to disregard it. Our hope is that we may do something to interpret the true insular Briton, in whom the national mind appears in its crudest state—in the making, so to speak. We must not, indeed, fail to trace the connection of this crude insularity with the highest achievements of the English genius; for to do so would be to mutilate our subject matter indefensibly. But yet we do not wish to lay principal stress upon our statesmen and ambassadors, our modern artists, musicians, and cosmopolitan men of letters, who may have studied in continental schools, and about whom the cultivated world abroad is as well informed as ourselves.

Our task then is the analysis of a working structure as we find it. We shall not endeavor to separate the material out of which it was formed from the conditions which have formed it. It is an intricate problem to disentangle racial characteristics, and if we could identify them at any epoch, they would still be no more than a relative point of departure. Their origin would still be lost in obscurity. However far we go back in the study of race, we have to accept mere facts as a beginning; and it seems simplest to begin with the present, which is the object of our interest, and can be directly observed.

And to treat the mind of a people as explicable by its material or economic environment is to say, in our judgment, too little rather than too much. The environment, as an environment, is a scheme of possibilities and opportunities constituting the definite world presented to an active consciousness. It not so much conditions the mind, as it *is* the mind. In order to explain the mind by it, we should have, in the first place, to state separately this environment as presented; but to state the environment as presented we should have to assume what we have to explain, the selective activities of the mind whose world it is. It is idle to separate mind and its surroundings; to try to reduce either to the other. The only sane method is to take them as a whole, and to note how a man or a nation reveals, as it were, the secret of their environment. We are not less ourselves, because we are the voice of our individual world. It is as the focus of such a world that we are anything at all.

The general scheme which underlies our psychological treatment is the familiar one of the three stages, common-sense, abstract or doctrinaire ideas, and thorough mastery, which returns to common-sense. Who is it says that second thoughts are best, not first, and third, which are a second first? In our judgment, the English mind is particularly at home in the first and third of these stages, and in the institutions, activities, and emotions which belong to them. In the second stage it is deficient; and life

being a whole which cannot actually be cut into sections or confined to strata, its entire work and capacities are seriously impeded by this fault. We shall endeavor to illustrate, by description of English types, the actual connection and interplay of the qualities in question, and their defects in the every-day life of different sections of the people. And at the conclusion of the paper we shall attempt to furnish briefly the answer to certain fundamental questions which are held to be touchstones of progress or decline for every nation to-day.

To return to our main discussion. The English traveller, we said, on returning from the continent of Europe, experiences a sharp contrast between English life and that of the continent as a whole. The mere fact of this contrast we summed up in the word *Insularity*. Nothing is the same in England as in the rest of Europe, by mere unconscious custom and contact ; everything that has crossed the Channel has done so for some definite reason. Most every-day things, therefore, are different ; and the general impression of difference is strong.

Such a characteristic may display itself in the mind of a people in many divergent ways, the most important of which we shall now attempt to trace.

Insularity tends inevitably to *Inarticulateness*. *Insularity* means want of contact with the general movement of the world ; and it is by the appropriation of the general order that the mind marshalls its experience, and is able to affirm itself in lucid speech and action. It may be a superficial judgment which pronounces the ordinary Englishman inarticulate ; but a superficial judgment is often true, though not the whole truth. The ordinary Englishman seems to be the opposite of Ulysses ; he has not seen the cities of many men and understood their thoughts ; even if he has travelled round the world, his mind has too often stayed at home. He tends to be " wrapped up in himself," and it is only restating the same thing, to say that his mind does not readily seize occasions of expansion and expression towards others. If he is shy

or rude, this need not mean want of natural sensitiveness, and may mean an excess of it. It very probably does mean a want of practice and habitual opportunity of finding a mental niche for unfamiliar types of persons and experience.

There are, of course, in life, very many modes of expression, and every work that man can achieve is in a certain sense an expression or utterance of his mind. In speaking of English inarticulateness we refer primarily to general human intercourse and sociality, as conditioned by the every-day use of language, and the tact and readiness of ordinary society. We shall have something to say under other heads of the results which may be attained when the self-concentrated nature breaks its bonds under the stress of a definite purpose or inspiration.

But what we have called inarticulateness is true of the English nature in even more than a superficial sense. Except,—its critics would say,—where morality is concerned, it does not greatly care about appearances, and does not realize that appearances are in one sense the better half of life. Its record in art and literature, though magnificent, is quite of a peculiar kind. The English mind, though often styled prosaic, is not really at home in prose writing so much as in poetry. Lucidity, simplicity, facility, are not natural to it. Formative art and music, the effective and pleasurable dealing with sense impressions, are not its primary vocation. Its sense of them was late in asserting itself, and seems to reflect rather the power of its genius to do what others have done than any native disposition to clear and effective form. An Englishman, as we propose to point out below, is usually, indeed, articulate in a special sense, namely, that there is something in particular with which he has identified himself, and which he really understands and can assert himself in. But general clearness and consistency, the general duty of making society pleasant and rational, the general introduction of order, method, and beauty into life, for their own sake, and because the mind is uneasy without them, are not for him the primary necessities of

existence. His life flows *towards* individual ends and interests, rather than *according to* formal schemes or general ideas.

It is this characteristic which causes the English mind to be set down, perhaps unjustly, as both utilitarian and hypocritical. It drives sincerely at its objects, and does not care to give them a form in which they are obviously reconcilable with one another. And a tissue of unreconciled sincerities has all the appearance of a gigantic hypocrisy. Thus the typical Englishman is quite unquestionably and sincerely devoted both to trade and to religion. The Society of Friends marks, perhaps, the climax of this combination of purposes, and of the impossible problem which it sets to the outside world. For the outside world in general cannot believe in a perfectly single-hearted devotion to two objects which are so very liable to collide. And in part, according to the view which we maintain throughout, the Englishman is really "inarticulate" in respect to this; in other words he has not reflected on, and organized, his aims according to general principles, so that collision may be avoided, and his endeavors may sustain one another and not be in absolute antagonism. In part, again, he has a true and profound instinct that good things are not incompatible, and that the skepticism with which his professions of sincerity are received is a superficial thing, resting on a doctrinaire basis. In so far as the former description applies to him it is obvious that he is on a track which may lead in various directions, from a splendid adventurousness, attended by honest moral self-confidence, down to the lowest depths of self-deception and intentional roguery. Men like William Penn at one end of the scale, and Jabez Balfour at the other, offer a subtle problem to psychology, the treatment of which is a touchstone both for the historian and for the master of fiction.

And thus, as it seems to us, we can do justice to the facts which have caused the Anglo-Saxon race to be called Particularist. It is true that the Englishman identifies himself with partial objects rather than with formal schemes and rules of life; often

with two or more of these, which being unreconciled, give rise to phenomena like those of the double Ego in the hypnotic subject. He has established his empire, we are told, in absence of mind. And the objects into which he throws his interest are those which most readily conceal their ideal character; objects chiefly of the common-sense level, springing out of the elementary necessities of life; such as the home, trade and industry, self-governing politics, and, strangely enough, religion. For to him religion is a necessary of life; and his extraordinary attitude towards it springs from this elementary fact, which for good and evil is fundamental in his nature. It might be laid down that any one who cares neither for the home, nor for trade and industry, nor for politics, nor for religion, cannot be a typical Englishman in the primary sense.

The term inarticulateness might be said to imply psychologically a predominance of conative mental systems over ideational. But the expression would not be altogether correct, as in fact all mental systems are of a conative nature, and each derives its unity from the conation or vital series with which it coincides.¹ But it is true that the inarticulate mind is given rather to action than to expression, and is not ready of speech or given to organization and order for their own sakes. That is to say, in the present context, that it is a mind absorbed in few and deep ideal systems which may be relatively disconnected with each other, rather than a mind which expands into a lucidly connected whole, whose parts have a tendency to symmetrical development. Its

(1) See Stout's *Manual of Psychology*, the leading ideas of which, especially the idea of a vital series, are assumed as the scientific basis of the present paper. A vital series is the train of acts or ideas which is initiated by a particular stimulus or suggestion, and continues till equilibrium is restored by the attainment of the "end" of the process, e. g., the removal of a pain, satisfaction of a desire, or achievement of a purpose. All connected mental life runs in vital series, and a vital series is *ex hypothesi* a conation, moving towards an "end."

ideal systems or vital series are set to work by urgent contradictions or necessities, intensely felt, and demanding positive action, and do not favor conation in the way of communicativeness and general ideas, and the facile opening out of mind to mind.

Thus we get the picture of a mind which is deeply absorbed in particular interests, and even, if we like to say so, absorbed in itself. For if we find it absorbed in other persons, it is so by reason of some special quality which binds them to itself. Altruism as such, in the etymological meaning of the word, as the spontaneous outgoing of the mind to others because they are others, is not, we must admit, its primary affair. How far such self-absorption involves ethical selfishness, and by what road it may escape it, we have now to see.

The general theory of the matter may be stated thus. A particular interest, such as that of the home, or of success in an industrial vocation, may be a terminus or a connection. The self which begins by being absorbed in a few particular interests,—a characteristic which we indicated by the terms *Insularity* and *Inarticulateness*,—may rest in its insulation, or may pursue its interests to their ramifying point. In the former case the mind remains on the lowest of the three levels which we suggested as a standard of comparison. Having neither opened itself to abstractions, nor penetrated to radical connections, it is repellent, Philistine, bourgeois. In the latter case, it is on the path to true Individuality, the emphatic and most vital form of experience, where general truths are not merely understood or ideated as if in print; but are lived and acted out, as the principles of organization, both of the mind and of the world. We remember Matthew Arnold's Arminius and his estimate¹ of "one of our representative industrial men (something in the bottle way)." "His ignorance of the situation, his ignorance of what makes nations great, his ignorance of what makes life worth living, his ignorance

(1) *Friendship's Garland*, p. 5.

of everything except bottles—those infernal bottles.” Take the description to the letter, and you have our lowest level,—the industrial or commercial interest pure and simple, doubled, very probably, with a narrow and relatively selfish devotion to the “home,” its “comfort,” and its tyrannous domesticity. But yet the naiveté of the criticism might make a modern sociologist smile. Had Matthew Arnold, he might ask, ever seen a glass blower at work? Had it ever occurred to him to reflect where the manufacturer’s absorption in his pursuit must ultimately lead him? Or what the problems are which attend the organized life of many hundreds of workmen; and how the curious distinction, which he was fond of insisting on, between trade or industry and the things of the mind, must necessarily reveal its nullity before any thorough experience of either? The Englishman, it is true, does not start from the basis of the general European interest, and the real or apparent strategical security due to his insular position gives him an indolent sense of political leisure and an excessive willingness to “muddle along.” He comes to his social and political knowledge, if at all, indirectly, by pressing home the problems of particular branches of work; and it is but too commonly the case that he altogether fails to arrive at it. So it is throughout the whole of his interests. He starts with the particular, and if he carries it through according to the logic of life, he attains a very high type of vital experience and capacity. But he often fails to carry it through by reason of his inarticulateness, his pugnacity, his self-absorption, and his contempt for abstract ideas. And then, of course, he not merely fails of the highest attainment, but risks the destruction even of the particular tangible interest with which he started.

The home, for example, at its best, is a nursery of courage and of public spirits, a bond which stretches readily to the ends of the earth, and an influence which leavens all society, and is not restricted to those who share its life by the right of kinship. (An old bachelor, it was once observed to the writer, generally

attaches himself to some family and becomes at home with it.) But, of course, it may stop short of this. It may remain a forcing house of selfishness, a horizon to the homely wits of the home-keeping youth, and a wall of exclusiveness against the general life. And with such a temper it will often prey upon and ruin itself. And the difference between the two characteristics is simply a question of the thoroughness with which the logic of the home, as a spiritual idea, is pursued. So with industry, self-government, and religion. In all of these the Englishman is self-concentrated, distrustful of outside influences and especially of centralization, jealous of novelty, of criticism, and of general conceptions. And there is a point, of course, at which such a disposition means fossilization, obsolescence, obscurantism, and even, perhaps, corruption. On the other hand, it means a widespread energy, self-reliance, and initiative. It was no poor rate-payer of the working class, nor Philistine of trade, but a country squire, an experienced magistrate and administrator of business in the pre-county council days, who once said to the writer, "Of all the folly and waste we have to cope with, the worst are the 'fads' of the central inspectors about our buildings." He was speaking of the great lunatic asylums which are a heavy burden on country finance in England. We have no opinion whether he was right or wrong; but there is the attitude of the local Englishman as such, high or low, rich or poor, to the government departments. He is always on the defensive on behalf of his locality; he believes that it knows its own needs best; and he hates being interfered with. In any set of local offices in England, affiliated to a central body, public or private, this characteristic attitude may be noted every day in the week. Now when this temper is so far wrought upon by educated experience as to accept new suggestions and necessary rules of uniform method from without, retaining the highly individualized experience and adaptive skill by which they are modified to local needs, a type of admin-

istration is reached which can hardly be bettered. The same thing applies on a large scale to the relations of our island and its world empire. Ideas are the most portable of baggage, and in the absence of continuity on terra firma it is ideas that must form the connection. Sea power may keep off enemies, but it could not by itself form the bond between vast and scattered territories. A maritime empire must be founded on ideas, as the Athenians discovered to their cost, when their brilliant and useful league proved hostile to the very central motive of the Hellenic mind. Thus the very fact that we start with the extreme of geographical insularity binds us to maintain our empire in the highest ethico-political form, if we maintain it at all. It is one more case of the law of our existence.

The conception which we are stating seems a simple one, and there is no need to labor it further by applications. Science in industry, and enlightenment and art in religion are other cases of the higher level, between which and our insular inarticulateness we are apt to hang suspended.

We will now look at some types of English character drawn directly from life; and these, because no living consciousness is shut up to a single stratum of mental intelligence, will indicate to us the knot and meeting point, the very nerve of potential expansion, by which Insularity and Inarticulateness in the English mind may be more or less transfigured into Individuality and the thorough mastery of the situations. This latter characteristic, for which we have found no convenient term recognized in every-day life, is something akin to what the philosopher has in mind when he speaks of concrete idealism, and the man of affairs when he speaks of constructive and administrative genius. It has its counterpart also in the world of science and imagination, where all great nations meet, but where each still bears the marks of the peculiar path by which it has ascended.

We have already suggested that one peculiar characteristic of the Englishman is his preference for action over expression. It

is this which is at the root of his inarticulateness; it is easier to him to work out the situation in actual achievement than to express his ideas in words. From one point of view it may be said that this is only his particular mode of expression; but it is not so in the sense that the artist or poet expresses himself in his work. It is not expression for expression's sake, or for the indulgence of communicativeness; it is rather that given some concrete state of things not yet complete, he is less capable of describing it than of putting himself bodily into the gap and working it out to completion. It is the same tendency to conation whose end is an actual change, which makes him always ready to take his place in any concrete body working towards some definite, concrete purpose; local government, Trade-Unions, benefit societies.

Of course the inarticulateness is a matter of degree. You may find it in its most complete form in the young country laborer of a backward type, whose first response to a question or greeting is a blank stare or slow grin. But put this same man into a situation which he understands, give him a spade and a stretch of land to trench, and he will promptly prove himself equal to the occasion. It is as if he felt himself more at home in the life of nature and action than in that of thought and expression; the sodden earth needs air and sun, nature calls in his aid, and he responds liberally, throwing the whole weight of his strength into her processes; but he cannot translate those processes into thought, he cannot describe, nor talk about his work and how he regards it. And perhaps even the highest type of country laborer is too much a part of silent nature to find easy expression in language. It is not that either knowledge or language is wanting; he will have a deep and intimate knowledge, at any rate, of the district in which he works; of the nature of the soil and its capabilities, the flora and fauna, the seasons of growth and decay, of generation and death, of the meaning of weather signs, of cloud and mist and wind; and he will share

with those amongst whom he works a vocabulary hardly known to the outside world. But two such men will work side by side a whole day through, and merely exchange a few monosyllables when the exigencies of their work demand it.

It would seem, too, that progress in education tends in the first place rather to greater nicety in action, to greater skill, than to more articulateness in speech, though this may follow. 'A man who will lay out a garden accurately and skillfully, may be quite incapable of showing by his language whether he understands the plan from which he will have to work, or not. It is easier for such a one to measure, dig, and toil for a month, than to express in speech the idea which he is quite prepared to translate into reality. He will find a similar difficulty in description. He is ready enough to single out a plant which is actually present, and to give it its name, but is baffled and confused by the attempt to describe any which is absent.

We may find a psychological justification for this characteristic in the probable antagonism between talking and doing. Not quite in the commonplace sense that you cannot do two things at once; that is not strictly true. But if the theory is to be maintained that the incipient idea is but the incipient muscular action, and that it issues into the more or less complete idea only when the muscular action is delayed or thwarted, then this seems sufficient reason for the suggested antagonism. To the strong man who feels his muscles responding to every suggestion of work, and whose vitality runs deep and irresistible within him, the issue in action meets no check, and is far more natural than to the man whose weaker tide of energy prefers an outlet more economical of its force. In the less energetic frame the suggestion comes of some definite action; but the muscles do not readily respond, the body remains inert, the suggestion takes definite form in ideas and finally finds an issue in speech, which may be merely communicative, or may be imperative and so lead indirectly to the desired end.

It is here, perhaps, that we may find the explanation of differences of characteristics between the sexes. A voluble woman will scold her husband, not because she is worse tempered than he, but because the suggestion of annoyance can find no adequate expression in her feeble frame. Her husband will respond with a blow, not because he is more cruel than she is, but because his annoyance finds immediate and adequate expression through his muscles. And having attained expression in that way, he will not only have no need of speech, but will have no impulse left to speak; the incipient idea has realized itself in action, and he may never have known clearly, far less be able to express, what the ground of his annoyance was. An oath, again, is the equivalent of a blow rather than of an idea. Race characteristics, too, seem to be based upon some such physical variations. The more voluble, gesticulatory races are generally the less massive and physically strong.

With education the difference tends, of course, to disappear. The woman who has to earn her living forces her energies to the more profitable issue; the man learns to withhold the immediate impulse to action, and finds a safer outlet in speech and thought, a speech and thought that will be weightier in proportion to the strength of the original impulse.

The acquirement of skill or knowledge which goes to the making of the mechanic or artisan is a process of this nature. Skill is action that is guided, restrained, adapted; and this control, restraint, and guidance means the presence of conscious and definite ideas. And with articulateness in ideas comes, at any rate, the possibility of articulateness in speech; the speech of the man to whom action is natural and talking an acquirement, will always be more slow, and as it were, difficult, than the speech of the man to whom talking is the natural issue.

It is at this level that what we may call practical working ideas have such influence over the Englishman. Take for instance the young coöperator, who is probably also a mechanic

or artisan, accustomed in the tools and machinery which he handles to the physical embodiment of ideas, and keenly appreciative of organized action of which he can understand every step, and which leads to definite results. Get him to talk to you of the work of his society and its aims ; he will do so carefully and slowly, it may be with some difficulty ; pausing as if the words were slow to come, but pushing on steadily through the subject as if a weight were to be moved. His contact with the things he speaks of is almost physical as he speaks ; you seem to see the images of the stores he helps to manage, of the central offices, of the class rooms, or the popular lecturer who will be engaged by the educational committee and the less popular lecturer whom conscience suggests,—you seem to see these all visible to his mental eye, and struggling to find expression in speech. These things are realities to him in a sense in which the Socialist's visions can never be to him. Hence the greater volubility of the latter.

It is the same again with the Trade-Unionist. There is nothing so real to the Englishman as his work, the thing he does with the skill of his hands and the sweat of his brow ; and there is no bond between him and his fellows like that of doing the same work. Work in general, the mere fact of toil, is too abstract an idea to be a reality for him ; it must be this particular straining of the muscles and striving of the brain which he himself understands, if it is to be a practical working idea, capable of combining him with others. The work he has not done and does not understand is a mere ghost of an idea in comparison with it, and vanishes before the pressure of hostile facts. And so it happens that the differentiation of Unions follows close upon the differentiation of trades, and the universal Trades-Union which is the ideal of one class of world reformers become more and more improbable.

And women are not Trade-Unionists for the same reason, that to them their work is not the most real thing there is ; for the

main part it is a mere side issue. Their husbands, present or future, their children or their friends,—personalities of a given shape and size, of whom and to whom they can talk without effort,—these are the moving forces with them; and a devotion to personalities who are in no sense common property is no basis for union.

But though at this level of work, Englishwomen have shown little capacity for union or coöperation, we must note amongst those who live in a different region of thought a quite remarkable tendency towards the particular kind of union known as a “society.” These Societies, which are innumerable and of every kind, may be roughly classified into two great groups according as they have their origin in two sets of ruling ideas,—those of Philanthropy, and those of Self-Culture. It would be difficult to find an Englishwoman of leisure and culture who does not “belong” to at least one such society; and the majority have some share, nominal or active, in several. Many of these societies are capable of inspiring their members with great devotion; but whether the work done is important and useful depends, of course, upon the adequacy of the ruling idea. For our present purpose it is only necessary to note two points. The first is the remarkable and significant distinction which has grown up between the two terms women-workers,—those whose work has its origin in some philanthropic idea,—and working women. It is hardly too much to say that, as at present used, the two terms are mutually exclusive.

The second point to notice has reference to the articulateness of these two classes. The working woman, as such, is dumb; she will talk, indeed, *at* her work, but not *about* it. The woman-worker is before everything a talker; and as a rule she talks well. There is no need to call for evidence of this. The National Union of Women-workers, which exists for the purpose of discussion and exchange of experience, is the embodiment of these characteristics of Englishwomen.

The Englishman, true to his primary impulse to action,¹ finds the fulfilment of his desire for practical efficiency, either in the Union arising out of his trade or profession, or in the institutions formed to cope with the problems of local or national government. His "societies" are the Vestry, the Board of Guardians, the Rural or District Council, the School Board, the Bench of Magistrates, or Parliament. In these he finds scope for exerting an influence upon his fellows, and in these, too, he finds the necessity for speech to make that influence felt. And it is significant to note that on the Boards where less educated men are apt to meet, such speech is apt to be more of the nature of a blow, an attempt to coerce opinion, than of the communication of ideas. A strong conviction finds its expression in personalities and recriminations, in the absence of power to explain.

But the influence of such institutions over the English character, their power to draw good work out of lives, which in their purely private capacity seem hopelessly weak or even bad, is very noteworthy. For instance, the moral and intellectual level of the individual members of a Board of Guardians or Vestry in the poorer districts of London, may be distinctly a low one in many important respects. Yet in their corporate capacity many of these men are doing excellent and even devoted work.² They

(1) Action, of which muscular action is the simplest case, continues to be different from mere expression and communicativeness, even when its instrument, as in all the higher walks of business and government, has come to be expression or communication by speech or writing. It is still a conative system moving towards a definite change in the system of things or persons; expression and communication are means to it, and not ends in themselves. If I simply overflow with talk and description to you, that is, relatively, mere communicativeness; if I make a business proposal to you, that is, relatively, action; both, of course, are, for psychology, parts of conative systems.

(2) It is a most important point for theory, in contrast with the views popularized by such writers as M. Le Bon, that the intellect and morale of a Committee with a practical aim is often if not always superior to that of its members.

find their place clearly indicated for them, and for the most part they respond to its claim, and take a pride in doing so. We call to mind one such man, who is fairly typical of many. He keeps a little oil shop, and any one knowing him only in his private capacity would be justified in describing him as a broken-down drunkard. But he has been for many years a Guardian of the Poor, trusted by his fellow Guardians, though an occasional absence from duty on his part is always explained by jocose references to the broken teapot. He has been a member of the Vestry also; but his chief delight has been in his position for many years as chairman of the managers of the local board schools. He has probably lost that now, for reforming spirits from outside were shocked at the thought of his bad example to the rising generation, and were eager to cut him off from his work. And yet it is possible that the rising generation might have derived more good from the sight of his devotion to public work than harm from the knowledge of his private weakness. In a school numbering hundreds he knew almost every child by name, as well as its family history; their festivals were his festivals, and at their prize-givings a word of commendation from him was as important as the prize itself. The teachers, who were most of them his superiors in every way, never hesitated to recognize his claim to their respect, for he fulfilled his relations towards them punctually and sympathetically. And yet, if you had met him in the street, in the greasy, black, and tall hat, which he always wore in respect to his office, you could not have looked at him without reading in his tremulous face the curse of drink. Of course we are ready to admit that public work may be better done by better men; all that we wish to lay stress upon here is that the Englishman finds his true strength in the organic life of the community.

We have suggested that in at least one respect the psychology of the Englishwoman tends to a fundamental difference from that of the Englishman. It is a difference corresponding to differ-

ence on the one hand of education, on the other of physique, and may almost disappear in those individuals in whom the types approximate,—individuals, that is, in whom education has counteracted instead of accentuating the difference of physique. Between the women-worker and the working woman there is a distinct type, also of recent differentiation, in whom we may see this approximation most clearly. I refer to the energetic, independent woman of culture who has been caricatured as the New Woman. Frequently she earns her own living, and is proud to rank herself amongst working women; but this is not an essential feature if her independence is otherwise ensured. The key-note of her character,—for it is essentially a question of character,—is self-reliance and power of initiation. She does not depend upon some private and individual authority for her opinions, beliefs, and suggestions to action; but aims at being in direct contact with reality, and at forming her own judgment upon it. Of course this is an attitude which is capable of gross exaggeration and misuse; no one is independent of authority in all regions of knowledge, and it is the attempt to be so which has afforded some justification for the caricature—but the important question is, whether the authority is one which appeals to the reason, or whether it depends upon the accident of sex for its sanction. The change which has led to the development of this type may be summed up as the improved mental and physical development of the girl, necessarily accompanied by and leading to a different ideal for the woman. The girl who is no longer taught that her primary duty is the negative one of crushing out any instincts or ambitions which would lead her outside the seclusion of home-life,—even when that life affords no positive duties,—naturally seeks some sphere in which her life may become useful or significant. It is becoming unusual for families of unmarried girls to loiter wearily on into old age, waiting hopelessly for someone to invite them to take up the duties of life. Wise parents encourage them to make a life for themselves, and

the girls whom a stagnant life would have turned into sour old maids now become a source of strength and sweetness to their surroundings. And if in their attempt to be significant, to find a sphere of action in the world of reality women sometimes mistake their way and fall into mere singularity, that is only a misfortune incident to all pioneers.

Individuality, as we use the term, does not mean the same as Individualism or Particularism. We may express our standpoint by reference to a remarkable antithesis between the ideas of M. Demolins,¹ and those of the late Mr. Matthew Arnold.² Mr. Matthew Arnold held, as we know, that the middle-class Englishman hoped to be saved by doing and saving what he liked, by being so rich and industrious, and by having so very many children. And he was convinced that this gospel was a false one; that the English nation had fallen hopelessly behind in the march of the European peoples, and that what it needed was not individual liberty, nor wealth and industry, and the bliss of having so many children, but obedience, education, and refined enjoyment of life. Now precisely these qualities by which Englishmen, according to Matthew Arnold's satire, falsely expected to be saved, are those by which according to M. Demolins' sociology, they have, in fact, been saved,—by their personal liberty, their wealth-producing energy, their independent education, and their having so many children. Matthew Arnold held, in a word, that the English were being ruined by Particularism and Individualism. M. Demolins proclaims that their Particularism and Individualism has saved them body and soul. M. Demolins looks from the vantage ground of a later generation, and he ought to be right. But we who have known our Philistine nearer at hand, and who observe a certain one-sidedness in M. Demolins' too favorable analysis, feel it hard to believe that Matthew Arnold was altogether wrong.

(1) *Anglo-Saxon Superiority.*

(2) *Friendship's Garland and Culture and Anarchy.*

We should state the matter thus. It is true that the English begin with a certain particularism or individualism, which we have called insularity, and they tend to preserve the external appearance of it. They have a self-absorption and devotion to particular interests, and a hatred of interference, which seem to reflect the actual detachment of their home and of their life from the general world. This individualism Matthew Arnold saw, and, seeing it superficially, he struck at it with all his force as a congenital vice. M. Demolins, coming thirty years later, is compelled to see less superficially, the logic of fact having revealed many things in the interval. What he sees, is, in fact, not individualism, but individuality, as yet unhappily only too imperfect, but, such as it is, the organic growth and ramification of profound and powerful conations, which began, no doubt, under the guise of self-absorbed particular interests. But though what he sees is, in fact, individuality, he still employs the old phrases and judges it as individualism or particularism, and proclaims, therefore, to an astonished world that particularism is a saving gospel.

Individuality, then, for us, means the character of a being that is so well-knit and so harmonious with itself that no division of it is conceivable; the character of a living body, or still more of a living mind. The more highly individual is that which, being harmonious, has "more in it," which is more of a self, the "greater individuality." It is not opposed to universal relations, but only to doctrinaire abstractions. Individualism or particularism, again, are the temper to which atomic unity is the ideal, that is to say, for which individuality is attained by not containing enough to divide, and so by the exclusion of system and harmony. It is a false conception throughout, and the search for it means dissolution. Even the atoms could only be real by attaining to a true individuality;¹ that is, by positive self-harmony and not as repellent centres.

(1) The conception of Leibniz.

Thus what Matthew Arnold denounced and what M. Demolins commends are in a great degree different things, although the former cannot wholly be acquitted of blindness to the true powers of social growth, nor the latter of theoretical misjudgment. Yet great organizing forces, which in Matthew Arnold's time were subterranean, if not volcanic, have come to the surface and proved to be growths of individuality. Matthew Arnold's own labors have done very much to let in air and light to the expanding tissues of the English mind. The "particularism" which M. Demolins approves is really a high, organized structure, with defects enough, indeed, but certainly containing ideas, and having something like a grasp and mastery of the modern spirit. Two passages from Matthew Arnold are worth noticing in this connection, the one ironical, the other serious. The first is taken from a letter in "Friendship's Garland" bearing the date 1867 :—

"You may imagine how horribly disagreeable Arminius made himself during the famous snow in London at the beginning of this year. About the state of the streets he was bad enough, but about the poor, frozen-out working men who went singing without let or hindrance before our houses, he quite made my blood creep. 'The dirge of a society *qui s'en va*,' he used to call their pathetic songs. It is true I had always an answer ready for him—'Thank God, we are not Hausmannised yet' and if that was not enough, and he wanted the philosophy of the thing, why I turned to a sort of constitutional, commonplace-book, or true Englishman's *vade mecum*, which I have been these many years forming for my own use by potting extracts from the *Times* and which I hope one day to give to the world, and I read him this golden aphorism : 'Administrative, military, and clerical tyranny are unknown to this country, because the educated class discharges all the corresponding functions through committees of its own body.' 'Well, then,' Arminius would answer, 'show me your administrative committee for ridding us of these cursed frozen-out imposters.' 'My dear Arminius,' was my quiet reply, 'voluntary organizations are not to be dealt with in this peremptory manner. The administrative committee you ask for will develop itself in good time ; its future members are probably at nurse. In England we like our improvements to grow, not to be manufactured.'"

The passage means, I take it, that the current English talk of voluntary organization is idle cant. But the irony was an unconscious prophecy; the administrative committee in question (that of the Charity Organization Society, founded four years after Matthew Arnold wrote these words) now sits every Thursday, and it would be generally admitted that owing to a movement which it at least symbolizes, the worst evils of folly and panic in dealing with the unemployed are not likely to recur.

Again we read:—

“You are made up * * * of three distinct and unfused bodies,—Barbarians, Philistines, Populace. You call them aristocracy, middle and lower-class. One of these three must be predominant and lead. Your lower-class counts as yet for little or nothing. There is among them a small body of workmen with modern ideas, ideas of organization, who may be a nucleus for the future; there are more of them Philistines in a small way, Philistines in embryo; but most of them are mere populace, or, to use your own kindly term, residuum. Such a class does not lead.”¹

This is the one serious reference in Matthew Arnold, so far as we are aware, to those industrial phenomena of the late nineteenth century which far exceed in significance all the ideas and traditions of international politics, which Matthew Arnold was so justly anxious we should possess.

To them we will turn for a moment, and not attempting a complete account of them, such as may be sought in many special treatises, we will endeavor to appreciate their importance as regards the individuality of the workman, who forms, after all, the bulk of the English people.

The development of Individuality out of apparent Individualism or Particularism cannot be better studied than in the vast institutions which the English working class has organized to meet its

(1) *Friendship's Garland*, p. 80.

necessities. They are, as is well known, of four principal kinds : Trades-Unions, Friendly Societies, Coöperative Societies, and Building Societies. The primary business object of the Trade-Union is to improve the conditions of labor in a particular trade ; of the Friendly Society to ensure the workman and his family against sickness ; of the Coöperative Society to bring the necessities of life to the working class consumer in reliable quality and free from the retailers' profit ; and of the Building Society to lend money on mortgage to its members for the purpose of building houses for their own occupation. (The Building Societies, it should be observed, are not rooted in the solidarity of the working class in the same sense as the societies of the type previously mentioned, and their business has not been confined to its primary object. The large operations of Coöperative Societies in building houses for their members should be noted at this point.) In fact, no doubt, high-minded and far-reaching purposes were entertained by the original promoters of all these types of institutions. In the coöperative movement this is especially verifiable. If there had been pure atomic Individualism at first, we should hardly have got high individuality at last. Still, as business associations, these institutions have one and all worked by business methods dictated by the definite necessities for which they existed to provide. The Trade-Unions, in particular, have behind them a history of strenuous pugnacity which makes their emergence into a wider outlook and a complex organization of ideas a most instructive spectacle to the social student.

Now if it is true (and it is so only very partially), that the British Empire was acquired in a fit of absent-mindedness, it is true in the same peculiar and limited sense that in a fit of absent-mindedness the British working class has built up, mainly in the latter half of the nineteenth century, the greatest organism of fruitful, democratic ideal that the world has ever seen. His self-interest, pursued on the whole honorably and candidly, has

opened itself out, through the logic of facts, and has disclosed its inherent connection with the higher aims of life, with leisure and education and health and independence, and with the conception of a better life for mankind. To the man who takes an active part in the management of these associations a wide range of sympathy and of knowledge is opened up. "He feels that he is taking part in the actual government of a national institution."¹ In the Trade-Union he is one with an organization which reaches from the workshop and the workman's home to the diplomatic handling of vast negotiations between Capital and Labor; and which has its word to say in the House of Commons, before Royal Commissions, and at the Departments of State with their Inspectors. In the relation between Trade-Union and Coöperative Society, respectively representing, as Mrs. Sidney Webb² has happily suggested, the man who earns the wage and the wife who buys for the household, he has before him in a nutshell the problem of the interests of producer and consumer, and such questions as that of sweated labor seem capable of being solved by this alliance alone. As a member of the coöperative movement he is pledged to an educational interest, he is beginning to be in touch with the universities;³ and, moreover, he is involved in a complex business organization, the management of which is itself an education. It is needless to pursue the matter further;

(1) Webb, *History of Trades Unionism*, p. 437.

(2) *The Coöperative Movement*, p. 202.

(3) "In this connection it is interesting to note that the coöperators have commemorated the labors of Judge Hughes and Mr. Neale by the foundation of scholarships at Oriel College, Oxford; and that university extension lectures and classes for study, and examinations with rewards to successful students under the auspices of the Coöperative Union, are largely supported by them."

an elaborate treatise might be written on the context of ideas and ideals affecting the life of the working community, and ultimately the workmen of all nations, which is embodied in all the great associations to which we have referred. A busy member of a learned profession or of a leading commercial or manufacturing community, thinks with some justice that his mind is in active concert with most of the great interests which make life worth living to his nation. But it might well be argued that a Trade-Union, Coöperative, or Friendly Society leader has a yet deeper hold on the national life, and mirrors more fully in his mind the true needs and aims of his fellow countrymen.

Yes, it will of course be rejoined, all this is very fine, but how far does any of it apply to the ordinary workman? All that we can say for certain seems to be this, that within such associations a continuity is maintained by the mere necessities of business, which is constantly tending to spread ideas and information from the centre, as well as to collect them from the local branches. Such a workman, for instance, as we described on page 86, though only a weekly wage-earner, has thoroughly felt the social value of ideas, of lucidity, and of extended knowledge. A mind in which particular contents have thus expanded by their natural logic into ideal systems, representing the social life of their community in the connected unity of its various sides, while retaining the driving force of self-absorption in a positive course of action, we should pronounce to have passed from individualism to a high degree of individuality. To minds thus organized particularism is no longer the last word, and politics and administration—even the political arrangements of a world-empire—are no longer alien things, but are all in the day's work, so long as they retain the aspect of self-government.

But we shall be asked again, at best to how many of your workmen could such a description apply? What fraction of your working population have to do with these societies at all?

Figures do little to answer such a question ; but here they are for what they are worth. The male adult workmen in the United Kingdom¹ are stated by Sir Robert Giffen at 7,300,000.² The membership of Trade-Unions of more than a year's standing at December 31, 1896, was 1,036,351. The membership of Coöperative Societies on December 31, 1895, was 1,430,340. Building Societies, in 1896, had at least 635,716 members. The membership of Friendly Societies other than Collecting Burial Societies in the United Kingdom at the last return before 1898, amounted to 4,203,601. Adding to these the Collecting Burial Societies, which represent at best the desire to avoid a pauper's funeral, and against which a good deal has been said, we get a total of 8,078,816 members. Of course in this last figure large numbers of women and children are included.

We know of no means of estimating how far the members of the different kinds of societies are the same persons. It seems natural to assume that they are so to a very great extent, and that, therefore, of the 7,300,000 male adult workers only a small proportion belong to any society which makes returns to the Registrar, if we omit the Collecting Burial Societies to which the very rudest and most careless of the population are found to contribute. But we have to remember that great numbers of men belong to Sharing-out Clubs, indicating foresight for the year, and other small societies, in the management of which members take an actual part, but which make no return ; and that though to be active in one of the great societies indicates a certain quality of mind, to be unconnected with them is not a damning proof of

(1) We have not the figures for England and Wales alone.

(2) See Brabrook, *Provident Societies*, p. 30 ; all figures used in this estimate are taken from this work.

unintelligence. No such sharp line can be drawn between one set of men and another, and the ideas which move the Society men necessarily find more or less echo through the whole working class.

To bring this matter to a point we will again compare the judgment of Matthew Arnold, by the mouth of "certain foreigners," with that of M. Demolins; not with the idea of confuting either one or the other, but because they afford, when taken together, a trenchant statement of a very paradoxical problem. "Are we?" Mr. Arnold's foreigners ask,¹ "to envy you your common people; are our common people to wish to change places with yours; are we to say that you, more than we, have the modern secret here? Without insisting too much on the stories of misery and degradation which are perpetually reaching us, we will say that no one can mix with a great crowd in your country, no one can walk with his eyes and ears open through the poor quarters of your large towns, and not feel that your common people, as it meets one's eyes, is at present more raw, to say the very least, less enviable looking, further removed from civilized and humane life, than the common people almost anywhere."

And now hear M. Demolins:² "We are therefore led once more to conclude that such a social formation"—particularist—"develops in the individual an extraordinary ability to rise. But there is something more characteristic; it is that among them, even in quite inferior ranks, the individual lives better, more comfortably, with more dignity,—more respectably, as the English say,—than on the continent. Upon the whole, acquaintance with the English workman,—whether in town or country,—leads one to feel that there is little to add to him to make him

(1) *Friendship's Garland*, p. 140.

(2) p. 150.

a gentleman, exteriorly and perhaps morally. He is a gentleman in a rudimentary state, at least he has the appearance of one, being more anxious to live generously than to meanly save his money."

Now we trust, to begin with, that in the lapse of thirty years (1866-1896), there has been a real advance. A working man or woman who was twenty-one in 1866, when Arnold wrote the above passage, had probably never been through a tolerably efficient school. Those who were twenty-one in 1896, had as a general rule enjoyed some measure, though far too stinted, of rational education and discipline. In 1900 this is true up to the age of twenty-eight. That the manners of the poorer Londoners have improved between 1870 and 1900, is a point on which personal experiences seem to agree. Those who only know London since 1890 have never heard the expression a "bus cad," nor do the omnibus conductors deserve it. The enormous crowds of the Jubilee night were a remarkable phenomenon, "so very ruly" as the writer's landlady observed to him. We hope that our populace is less "raw" than it was; and we owe the improvement, if there is one, in great part, to the impression made by Matthew Arnold on the national mind, in his unwearied advocacy of education.

But no doubt there is more in the matter than this. The Englishman does not idle gracefully, and he often idles viciously. Now below and quite outside the true working class there is a considerable fringe, the residuum, who are in evidence chiefly as idlers; and of the entire working class, even including the solid and prosperous mechanic, their leisure and enjoyments are the weakest point. We should not be surprised if it were true that a French, German, or Italian crowd of idlers, of the poorest or least industrious class, might show more genuine wit and grace and refinement in their enjoyments, than a crowd of English workmen away from their work, still more of English tramps and loafers. Undoubtedly the Englishman is seen at a disadvantage

when seen away from his work, and it is a great defect. Yet here, as elsewhere, we believe that by sheer energy and persistence, making for the expansion of the mind beyond its absorbing interests, without forfeiting the intense vitality which they generate, great things are being done. The art of enjoyment is being slowly learnt. To see the process in its strength and weakness, we must go to the places which the working class have created for themselves, and not merely study the means of grace which well-meaning philanthropists have provided for them. Take, for instance, one of their holiday resorts, which has fashioned itself entirely to meet their needs, and which depends for its existence upon their appreciation. It is fair to say that such a place is the outward expression of their ideas of comfort and enjoyment.

Such a one is Blackpool, a seaside town within reach of the great manufacturing centres in Lancashire. Thirty years ago it was a prosperous little place, esteemed for its bracing air and fine seas, and accommodating a certain number of summer visitors, who found it a good place for the children's holidays. The north end, on the cliffs, was the resort of the well-to-do middle and professional classes; the cheaper south end received humbler visitors. Now the distinction seems to have been swept away before the hundreds of thousands of the working class that have made it their own. No one goes to Blackpool now,—no one, that is, who counts socially; but the people go; they have taken possession of north and south indiscriminately, and Blackpool flourishes exceedingly. For it could not be said that in its material aspect the place has deteriorated with the change. The large hotels have become larger and there are more of them. The "Crescent," instead of dominating the place is dwarfed beside the massive lodging houses ("visiting-houses" is the genteel name) which have arisen to receive the people. The waste places are all built over with respectable rows of houses, handsome on the

front and neat behind. The cliff is banked and terraced and walled; every inch of space is elaborately laid out for the use of the people, for it is characteristic of them that they like to be prepared for. A watering-place without piers and promenades and esplanades is little to their taste. And "entertainments" there must be, of the latest style and on the largest scale. A great building occupies a prominent site in which all that can amuse and attract the indolent mind of the holiday-maker is offered at a low price. The best singers and musicians are engaged for, and appreciated in, the evening concerts; the latest "kinematograph" of the war is on show. Subsidiary entertainments are constantly going on in the open air or in more modest buildings; there is an Eiffel Tower and a Great Wheel; and no one need be dull who has a penny in his pocket.

And what are the people like for whom this place has grown up? The best time to see them altogether is on a bright morning when the tide is high. Then they are to be found sunning themselves on the broad promenade which runs the length of the town. They are there as thick as flies; in families, in parties, in twos and threes; they are walking, slowly, for in so dense a crowd they must thread their way, and quietly, for they know how to behave themselves, though they may forget sometimes, and there is as yet no pushing or rude larking. Later in the day, or in the evening, some of them will get rough and excited; but now they are simply enjoying the fresh air and sun, the wearing of their best clothes, and above all the presence of the crowd. Those who are less energetic occupy the seats along the promenade; massive fathers taking their comfortable dose, tired mothers forgetting the cares of housekeeping, anæmic young girls and lads drinking in the fresh, salt air, which is to brace them for work until next holiday-time, and passing the long, slow hours of freedom from work by the inexhaustible reading of cheap literature. Some have taken to the sea, and a few overcrowded sailing boats

in the absence of wind are heaving slowly up and down within a few yards of the shore.

A fortnight or three weeks at Blackpool is the typical recreation of the Lancashire working class. For this great savings banks have been instituted among the operatives; on this servant girls and shop boys spend their wages. It is a mode of enjoyment the very antithesis of all that persons of culture are apt to esteem. But we must remember that a member of the working class has never learned the real or fancied delights of solitude; he feels at home amongst numbers, and needs the sight of others' enjoyment to reassure him in his own. In the multitude he makes new friends and acquires new interests. And it is no small matter that this crowding enables him to have everything of the best. He does not mind how many sit down to their meal in one room, but the food must be good and plentiful. And in his entertainments whatever is offered must be good of its kind, and that can be done at a low price only when the audience is numbered by thousands.

The English are a sad people, we are told, and take their pleasures seriously. But this is only half true. That they do not express their pleasure easily or gracefully follows from the characteristic inarticulateness upon which we have laid stress. But sometimes it is their very absorption in enjoyment which hinders any expression of it, and sometimes, again, their mode of expression is so rude and uncouth as to pass for mere rowdyism. But wherever there is opportunity, as in the large towns, the English in all ranks of life show their keen appreciation of amusement; and one of the reasons of the so-called rural depopulation is the comparative lack of pleasurable excitement to be found in the country. In the poorer quarters of our large towns the opportunities for amusement are as plentiful and as eagerly seized upon as the opportunities for work; and theatres and music-halls if tolerably well managed are always sure of an audience. Even

the streets, dull and monotonous as they seem in the light of day brighten into a scene of gaiety as evening draws on, and stalls and shops bestir themselves in anticipation of the toilers who are just released from work. And it must be remembered that the quieter Englishman, the ordinary "commonplace" clerk or shopman or artisan has an infinite reserve of enjoyment in those domestic affections and interests which it is so easy to deride as "bourgeois" and narrow, and for which it is so hard to find a worthy substitute. But these are not matters for the world at large. The reserved and formal clerk no more dreams of showing to the outside world the corner of his heart, where he cherishes his pleasures, than he dreams of inviting it to see the back garden, where he trains his scarlet runners and plays with his babies. His relations with the world are those of business, his pleasures are a private matter.

It would have been well to complete the scheme of individuality in the English mind by tracing the shape which it gives itself in local self-government and in the higher politics,—always for the Englishman an outgrowth and integration of local self-government,—and, more self-consciously, in education. But our treatment has its limits, and a very few words are all that can be devoted to these working ideas of the English mind. Their roots we have already seen.

If the English people has been deluded in its estimate of the political intelligence of the wage-earning classes, the Nemesis is not far off. For recent legislation has absolutely democratized the local self-government, which in England is the very basis of life for the masses. It deals, through elective bodies, with elementary education, municipal government, health and housing, and the administration of the Poor Law, which latter branch of work, besides determining to a great extent the morale of the poorer population, involves the care of large numbers of deserted and neglected children, whose training is decisive for the increase

or diminution of a non-civic dependent class. Women can serve on the educational bodies and those that deal with the Poor Law. The functions, of these local bodies are continually on the increase, and the problems of municipal activity are largely left to their judgment. Men and women of leisure and education are not as a rule looked askance at by the working class electorate, but are welcomed pretty nearly according to the capacity and energy which they display. We read in the Surrey local papers from time to time the remarks made by an ex-Prime Minister (Lord Rosebery) as chairman of the district Council at Epsom, a village and district of a few thousand inhabitants. Conformably to the concrete structure of the English mind, the "neighborhood" may be regarded as an organized moral idea, a working conception of the way in which life should be carried on, among the people who share a certain local atmosphere, and certain industrial or other opportunities.

The relation of this local self-government to the national or imperial government may be conceived as in its idea, an educational instrument, by which the mind of each locality is constantly being re-adjusted in view of the experience of the country as a whole, while again, each contributes its own individual share to the knowledge focussed at the centre, and directly influences other localities. Thus we constantly hear of the Bradfield reduction of out-relief, the Tower Hamlets pension fund, the Birmingham cross-visiting system, the Manchester Provident Medical system, the Rochdale tin-ticket system, the Holt-Ockley district nursing system, and so on. It is a comical experience to be present at a conference of guardians or district councilors, who are one and all enthusiastic for the methods adopted in their respective localities whether for training poor-law children or for the disposal of sewage. It is a rough and humorous scene ; but it reveals a genuine organizing process in the national intelligence. This process may very well be studied in the system of elementary education, which

is really typical, and is a type of relation between the locality and the national mind.

Some schools are set up and managed by elected school boards with power to raise a rate, others by private managers relying on voluntary subscriptions. But all alike, if recognized as schools attendance at which satisfies the law, are "public elementary schools," are inspected by Her Majesty's inspectors, and earn a grant out of imperial funds according to the reports of the inspector, based on the requirements and regulations laid down by the educational department or Board of Education. The "Code," as issued by the department, fixes the outline of the curriculum for all elementary schools throughout the country. If this were all, there might be grounds for saying that local needs and experiences and the teachers' educational enthusiasm are strangled by the doctrinaire ideas of officials who have never seen the inside of a school. And this has been said, and has had much truth and perhaps still has some. But according to the idea of the arrangement, such criticism reckons without an important factor in the situation, and this is Her Majesty's inspector. Her Majesty's inspector, with one or two assistants (the actual distribution of inspectors and assistants varies from time to time) has charge of a considerable district of England, perhaps a quarter of a large county or the whole of a small one, with a child population of 50,000 to 100,000. It is his duty, technically speaking, so far as elementary schools are concerned, to ascertain the efficiency of the schools in his district, and to see that the requirements of the department are carried out, both as regards the curriculum, and as regards the buildings and appliances. The grant out of imperial funds is dependent, in one way or another, on his report. Of course such a system may be worked at a minimum or at a maximum of real helpfulness to education. We will point out its significance at its best. The inspector is the interpreter of the codes and regulations to the school, and

the reporter upon the schools to the department, which publishes as much as it thinks fit of his observations in its own annual report. He resides in his district, except by special permission to the contrary, and spends his life in travelling about it from school to school, on foot, by bicycle, by carriage, or by rail, and in studying all persons locally concerned with education. He is a university man of distinction and capacity, and may be an educational enthusiast, and may identify himself with the wants and powers of his locality. This being so, we have the conditions of a sort of case-law, and this followed by codification, which case-law proper in England is not. The inspector stretches an article of the code to give scope to an exceptional capacity in the teacher, or to meet a local need. Or he institutes an experiment outside the code altogether. He brings in ambulance classes, or manual training, or teaching of horticulture, under the nearest kindred heading of the code. The experiment succeeds. The teachers are interested, and work out new methods. The children are the better for it, and the local managers are delighted. All this in due time is reported to the department, not as a mere chimera in the inspector's head, but as a hard fact, a local achievement. The department, when satisfied that the thing is a real improvement, modifies its next issue of the code, so as positively to suggest the improvement in the curriculum, instead of barely allowing it to be possible. The inspector, when an enthusiast, is in an ideal position to study the theory of education. He will travel in his vacation, and observe the systems of other English districts or of other countries; and the philosophical basis of educational theory is placed within his grasp by his university training. Thus he is in a position to inspire the mind of his district with the best educational ideas, and to report to the central department, for the general benefit, the actual progress which is made by their application. This, we believe, is the real working of the system by which the "Code" however imperfect it may be,

has come to have a width and adaptability quite other than its characteristics of twenty years ago. English elementary education, it has been said, was a system devised by clerks for a nation of working men. But it has not remained altogether so; and that it has not is due to the working of local minds in contributing and appropriating suggestions through the agencies which communicate with the centre. It is a typical case, not of "imitation," but of "relative suggestion."¹ The English Kindergarten Department, for example, is not a copy of a continental school; it is the application of an idea to new experience.

This description is true in general not only of public elementary education (secondary education, by a characteristically English omission, is still only beginning to be organized), but of Poor Law Administration, in which the Local Government Board Inspectors form a very important body of experts; and *mutatis mutandis*, in sanitary matters, and in the enforcement of the Factory Acts. In the latter case the only elements concerned are the employer, the inspector, and the Home Office; local government not coming in question. We mention it for the sake of noting that the employment of women as inspectors, especially in matters where women and children are concerned, is a very important reinforcement of the effective national mind. The administrative mind of a nation or of a neighborhood acquires a larger judgment and fuller sensitiveness to the needs of the home, of the sick, of women, and of children, when women's minds are enlisted as active parts of it.

It is time to draw to a conclusion, though very much is left unsaid. The treatment of the English mind in the higher world of Art and Letters, of Religion and of Imagination, must be foregone. We have devoted our space to what seemed less familiar, and perhaps more fundamental. Man lives by faith and

(1) See Stout's *Analytic Psychology*, ii., 52 lf.

genius much more than by bread; but it is only in and through the general mind of his people that he lives at all. And, therefore, the conceptions which we have so far indicated are not difficult to apply in that more purely ideal world. We see a working religion, of tremendous force, but destitute both of philosophical and of artistic expression; and because of this destitution too often the prey of superstition and vulgarity. We find, to speak strictly, little inherent gift for literary form as such, if, as seems very convenient, we may be allowed to distinguish between talent for letters in general and especially for the finest prose, and true poetic genius. In sheer force of poetic genius the English mind has been matched only by the Greek and Italian; but here again its very force implies a vanquished obstruction in its utterance, and all students are familiar with the argument whether the mantle of the Greek has most nearly fallen upon Shakespeare or upon Corneille and Racine.¹

Into questions concerning other spheres of Art we need not enter. The criticism could have no interest, unless conducted in far greater detail than opportunity permits. No one can doubt that the English mind has achieved great things in formative art. It is permitted to doubt if this is the form of expression most congenial to it, whether in production or in reception.² There are signs, however, that its profound inarticulateness is as capable as ever of breaking out into form, and we hold it false as a matter of history and principle that a nation, especially a modern nation, has but one prime of art.³

Lastly the question arises whether the energetic individuality

(1) See on Lessing and Voltaire, author's *History of Æsthetic*, and M. de Jusserand who thinks the French mind and art naturally akin to the Greek. It is a question of force and depth against abstract lucidity.

(2) See above.

(3) Mr. G. Moore in preface to *The Bending of the Bough*.

which we have attempted to analyze is maintaining itself or is tending to wear away. The only real answer to such a question is to be found in a complete and familiar knowledge of a neighborhood or nation as a living or working system. Statistics are but fragments of life chosen in harmony with ideas of what is or is not significant, and if these ideas are ill-founded, statistics are worse than useless. They are, in short, like exact measurement in science; they derive their value entirely from the systematic idea within which they stand. They are, therefore, in the complex of actual living, difficult to handle; but one simple precaution, as M. Tarde has pointed out, is to use them chiefly in comparison of the same people with itself. Then at least we have some presumption that we are recording an actual casual progression—the development or disintegration of a single mind.

The statistical points on which stress has been laid in recent analyses of French civilization seem to be three:—1. The family and the question of depopulation. 2. The rate of crime. 3. The rate of alcoholism. From the first two heads we ascertain how far the national mind is maintaining itself against disintegration in the sphere of parental care and law-abiding citizenship. To these from an English point of view we should add the rate of pauperism, which indicates the progress or regress of disintegration primarily in the ideal of industrial life, that is to say, in the moral and intellectual capacity of the industrial classes to deal with life as a whole; and also, to a great extent, in the mind of the community, which in permitting a social detritus to arise simply gives outward form to the incoherence of its own ideas. Obviously this test is also intimately connected with the rate of crime, especially juvenile crime, and with the maintenance or non-maintenance of parental care. (We are assuming the falsehood of the work-fund theory, and pre-supposing that in general and as a rule every trained and competent worker brings

with him a demand in bringing a supply). Lastly the rate of alcoholism, an artificial disease which unfortunately all nations have discovered the means of producing, is a fair indication of lacunæ in the mental organism,—lacunæ which may represent either incomplete development or the beginnings of dissolution.

1. It seems true, as M. Fouillée has suggested, that the tendency to sterility, which has long been observed in France, is showing itself in England. The increase of births from 1893 to 1897, we are told, was only one per cent., while that from 1869 to 1873 was ten and one half per cent., the increase of marriages in the later period being nearly as great as in the earlier.¹

The population, however, is, of course, far from stationary, the increase being between 300,000 and 400,000 in the year. This being so, the movement of the birth rate is compatible with the idea that increased parental care is being substituted for a high rate of reproduction; in other words, that the modern influences which make for reduction of the birth rate are operating rather to rationalize than to destroy the family idea. These influences are such as increased caution in undertaking marriage responsibilities, increased intellectual and economic independence on the part of women, and higher age of marriage. All of these, it is obvious, have a good as well as a bad meaning, and, as throughout modern civilization, it is the subtlest of problems to determine which predominates. If a higher intensity of parental care is active, however, it should show itself in a lower infant death rate. It does not at all follow that parental care should assume the form of financial provision for children, condemned by M. Fouillée and others. That the Englishman's sacrifices are made solely for the development and education of his children, seems as true as ever. It is but a few years since the alarm was all on

(1) *Journal of Economics*, September, 1900, reference to M. Cannan.

the other side, and directed to the rapid increase of population ; and we remember how idle it was at that time to point to the extreme variability of the birth rate by way of consolation. But the fact is that the birth rate in England is extremely sensitive and adaptable, and so long as an energetic but intelligent family idea governs reproduction, it is hard to believe that the population demanded by the needs of the nation will not be furnished. There is still ample room for the reduction of death rates by the adoption of the suburban mode of life ; and a movement in this direction seems to be setting in. The great cities, especially London, are making their new growth like trees, at the outside ; and to favor the exodus towards the country, and not to insist on filling up dwellings at the centre, is the main thing needed to introduce a new era in health, especially among children.

Undoubtedly the family idea has been threatened by the long hours of factory work, and the working of married women. It is to be hoped that in this matter we have turned the corner ; and the feeling against the mother working for a wage, which has always been prevalent among the good workmen of many districts, seems asserting itself more generally.¹

2. Juvenile crime is the most alarming factor in the criminal world. The greatest proportion of offenders to population of the same age lies between the ages of sixteen and twenty-one years.² It is, of course, as all social students have long been aware, the critical time of life, when the future is decided for industry, for pauperism, or for crime. The increase of crime at this age means the weakening hold of the family and the school,—the failure to form the mind to the notion of a social

(1) See Miss Collet, *Reports on Employment of Women*.

(2) *Criminal Statistics, 1900*, p. 27.

place. Official statistics¹ show a decrease in juvenile crime (e. g., between sixteen and twenty-one years from 321 per 100,000 population of the same age, in 1893, to 293 in 1898), proportional to the diminution of crime in general. But remembering Mr. Morison's criticism we should be glad to be more certain on this point. Perhaps the figures show that the forces of order are holding their own, and as every year the schools are improving and tending to extend the age of attendance, we may hope for a more decided improvement.

3. The story of pauperism is a sad and complicated one. We can only express the conviction that pauperism and the "residuum" are the outward expression of the detached idea of "the poor" in the mind of the community. It is an old and unhappy inheritance from other climes and other days; and it consists in a feeling of duty to "others," uncorrelated with a conception of the place of those "others" in society. The unclassed are treated as a class, and maintained to gratify a sentiment. As we in England have reason to know, both in Poor Law Administration and in Charity, this sentiment may become a terrible cancer, gnawing away the obligations of the family and of industry. In this manner the English pay heavily for the inarticulateness of their mind. If the mind of the community approached the question from the point of view of a positive social idea and a clearly conceived relation of means to ends, the question would solve itself. As it is, we may hope that the disease has been brought within manageable limits.

4. Alcoholism we take to mean in general that a man is not interesting enough to himself to pass the day without artificial excitement. It is primarily a symptom, though a symptom that is also a cause. The mind rebels against the verdict of the official statistician, who tells us that there is an increase of cases

(1) *Ib.*, p. 28.

of drunkenness from 1893 to 1898, and that it is due to the increased prosperity of the country.¹ But in a sense it may be so. It must be due to an increase of means without a rise in the standard of life. In one case which has come under our notice, where drunkenness has been increasing for the last five years among the employees of a certain company, the only concomitant condition that could be assigned was the immense activity and fiendish cunning of the liquor trade. The increase dated, it was believed, from the public-houses of the locality becoming tied houses. Great exertions were made from that time forward to give them attractiveness, and the unguarded minds of the men, a class between first rate mechanics and unskilled laborers, fell victims to the temptation. While not for a moment denying that overcrowding and bad housing in towns contribute to the evil, we note that in this case the worst conditions of town life do not exist, the workmen not being town dwellers at all. Nothing but a sound standard of life is a real defence; but alcoholism does spread by contagion and in waves and gusts, and undoubtedly the decrease of the temptation by some effective dealing with the liquor trade would at least put a stop to the weak being assailed by definitely organized temptations.

Life is a struggle in England as everywhere. But there seems no reason to fear that the individuality which is latent in English insularity and inarticulateness is failing to hold its own. The rates of pauperism² per 1,000 of population, in 1849 (the earliest year for which comparable figures exist), was 62.7. In 1872, this ratio had fallen to 46.1, and, in 1898, to 26.2. The absolute number of paupers, in 1898, was less by 200,000 than the absolute number, in 1849, in spite of the fact that population had

(1) *Criminal Statistics*, p. 14.

(2) Mackay, *History of English Poor Law*, vol. iii., Appendix.

very nearly doubled in the interval. The precise interpretation of these figures is a matter of controversy on which we cannot enter here. For ourselves, we entertain no doubt whatever that they indicate an arrest of disintegration, and a progress of organization, in the working ideas of the English mind. The introduction of absolute democratic control in the local Poor Law administration within the last six years has been attended by a slight upward oscillation in the rate of pauperism, indicating, that in certain districts, less attention has been paid for the moment to the teachings of experience. But there is no reason to think that the decrease is really arrested, and the phenomena of certain specially well managed districts point to very great possibilities of future diminution.



AMERICAN INTERESTS IN THE ORIENT

CHARLES A. CONANT, *Boston.*



THE United States have entered the circle of world powers struggling for opportunities in the Orient, and there is little reason to believe that they will withdraw from the struggle. They may show weakness in diplomacy or lose political advantages at certain points, but the importance of the economic interests involved,—affecting generations yet unborn as well as those now living,—are likely to make our interest in the development of China, Siberia, and the Philippines among the vital problems of our future commercial and political history. Political problems will arise regarding the administration of the new possessions of the United States, which will afford grounds for party conflict. In so far as these conflicts have to deal with questions of administration simply,—whether one form of civil government or another shall prevail in the islands acquired from Spain,—there is room for legitimate differences of opinion, which it is not the purpose of this paper to discuss. The economist is interested in civil government chiefly so far as it attains the highest efficiency from all points of view, which includes unfettered intellectual development for the individual and the guarantees of security and order for the free play of economic forces. For the purposes of economic discussion, it may be assumed that American influence will never cease to be paramount in the Philippines while we continue to be a powerful nation, and that American diplomacy will not cease to be seriously concerned with the opportunities for American enterprise in China.

It is a new experience for the United States to be seeking markets and opportunities for investment abroad, and many still question whether there is any occasion for so doing. It is said that there are still abundant opportunities for the employment of surplus capital in our own country and that they will afford better returns than precarious ventures on foreign soil. There is sufficient force in these arguments to justify their serious consideration. The conclusive answer to the first proposition, however,—that adequate openings for investment are to be found in the United States or in the settled countries of Europe,—is found in the decline in the earnings of capital. This decline is reflected in the rate of interest on permanent investments. The rate for commercial discounts and call loans moves up and down under the impulse of the special demand for money created by panic or unusual conditions, but no economist is hardy enough to deny that the permanent return upon capital has fallen within the present generation in all advanced civilized countries. This fall was first felt in Europe, but has come in the United States, with a certain degree of suddenness, within the past decade. Where a rate of six per cent. was formerly counted upon with confidence as the return from perfectly safe investments, the rate has fallen to about three and a half per cent. The reason is obviously found in the increase in the supply of loanable capital. This increase has not only been absolute, keeping equal pace with increased demand; but has been relative, greatly exceeding the ratio of increase in effective demand. The high prices of the best securities, the increase in savings bank deposits, and the forced conversions at lower rates of interest to which the holders of gilt-edged securities have been compelled to submit within the past dozen years, afford the conclusive evidence of this remarkable change in economic conditions.¹

The natural and obvious outlet for this excess of saved capital is in the equipment of the undeveloped countries with the

(1) For some of the facts going to show this great accumulation of saved capital, see *The United States in the Orient—the Nature of the Economic Problem*, recently published by the present writer, chapters i. and iv.

machinery of production and communication which are a part of the mechanism of modern civilized life. The fact that higher returns are paid upon capital in these countries than in the old countries, tends to prove that capital finds there a use more beneficial to humanity and more productive to its owners. To the student of political economy, the flow of capital to the point where it earns the most is the evidence of its high marginal utility at that point. The entire mechanism of the stock exchange and other organized markets has grown from the effort of capital to find the most productive fields and to ascertain with the greatest promptness and accuracy where they are to be found.

The investor, therefore, will naturally turn to the new countries for the placement of his capital and to obtain adequate returns. The practical question for the individual investor of the present moment is not whether, under some conditions of the future which are not conceivable to-day, opportunity may be found for the employment of his capital at satisfactory profits in the United States, but what are the present openings for such employment. He may believe that the irrigation of the western plains will absorb millions of capital more productively than the building of railways in Siberia, the opening of coal fields in China, or the development of sugar and tobacco plantations in the Philippines; but for the individual, acting under present conditions, there is no choice but to accept some of the securities which are thrown upon the market, whether he considers them profitable or unprofitable, honestly or dishonestly managed, safe or unsafe. The time will undoubtedly come when such great enterprises as the irrigation of the western plains will be taken in hand, but the work is likely to be done by the government rather than by private enterprise. The capital will have to be obtained in either case from the savings of the country, but the prospect is that, at the present rate of saving in the United States, the capital for such enterprises can readily be obtained in addition to all that is invested abroad, and that the amount taken by taxation for such purposes will not appreciably affect the amount of private capital seeking investment on the stock exchanges. For the present,

enterprises in the Orient and in Africa seem to offer the greatest attraction to the kings of finance; while for the future the prudent statesman is bound to consider whether the United States shall be deliberately barred from her share in such opportunities and in those which will grow out of them.

There are two phases of the contest for opportunities in the undeveloped countries,—the seeking of markets for finished goods and the seeking of opportunities for the employment of capital. It is often said by those who oppose a resolute foreign policy on the part of the United States that the market for finished goods which may be opened in China or other Oriental countries is not large in itself and will soon be preëmpted by domestic production. Already Japan is operating cotton mills which threaten to destroy the import trade in cottons from the United States. The same thing may happen in China and Siberia. The nation seeking these markets by large expenditure for military or commercial purposes may, therefore, finally close its hand over a prize which has turned to ashes,—the new countries producing their own finished goods and even coming into serious competition with the old producers. While there is some force in this argument, and this competing production must be kept constantly in view, much of the danger will undoubtedly be obviated by the redistribution of industries. If it proves practicable for Chinese labor to be drilled into the management of the delicate mechanism of modern woolen and cotton mills, until the products of Chinese mills can be laid down in San Francisco or Chicago twenty-five per cent., or even five per cent., lower than they can be produced at home, the mills of the United States and those who work in them will undoubtedly suffer. But the process must be a gradual one and will be more fatal to capital than to labor, because capital sunk in a valuable plant is practically lost forever; while the laborer, under more or less stress, may finally find new employment.

The uplifting consideration in this matter, as in the entire history of the substitution of machinery for hand labor, or more efficient machinery for less efficient, is the increased producing power which it brings to the community. If the making of

cheap cottons is relegated to the coolies of China or the peasants of Siberia, the American laborer or capitalist can obtain more cottons than formerly in exchange for a given amount of his own labor. If he makes shoes and formerly gave one pair of shoes for twenty yards of cotton, he may under the new conditions obtain twenty-five yards of cotton for his pair of shoes. This proposition is so elementary that it does not need to be stated to the trained economist, but seems to escape attention in some of the current discussions of our new opportunities in foreign markets.

The vital question which must be faced, however, from the standpoint of the laborer displaced from the cotton mill, is whether he can find other employment equally good or better. The answer is, that he should find a better employment. If the shoemaker needs only twenty yards of cotton and can obtain twenty-five for a pair of shoes, he will spend the equivalent of the extra five yards on some other class of goods. These goods will be something which he has not had before. If he has gone without a carpet, he may now purchase one and give new employment to the carpet mills. If he has had a carpet but has gone without gas lighting, he may give employment to the plumbers and the many industries which intervene between the raw metal and the decorated gas fixture, and he will increase his demand upon the gas company. If he has already all these comforts of life, he will be able to spend his surplus for the finer things which minister to taste and culture. He and the thousands who find themselves in a similar position will offer higher rewards and wider employment to the decorative artist, the painter, the sculptor, and the writer. They will be able more easily than before to submit to higher taxes, that streets may be improved, sewerage perfected with benefit to health and length of life, or the splendid monuments of taste and national triumphs erected which have made Athens and Rome the Mecca of cultivated travellers and turned even their ornamental works indirectly into a source of income.

Put in a nutshell, the transfer of the lower grades of employment to other peoples, because they are willing to render the ser-

vice in exchange for a smaller quantity of our products, means that more of our people are released for the finer, more stimulating, and more lucrative work of the skilled arts and the professions, and that there is more opportunity for employment in these professions. The product of a given amount of their labor exchanges for more and better things than before; and this creates a larger demand for luxuries and the need for more workers to produce them. If the individual laborer does not believe himself capable of ascending to these new and higher grades of employment, he should remember that the process of the transfer of labor is a gradual one and that some comrade of special aptitude for the higher grades of employment may vacate a place which he can fill. Even if the derangement of industries seems to involve temporary hardship, the increase in the producing power of the community, as demonstrated by the history of the economic progress of our time, means that the children of the laborer of to-day and his children's children may be sharers in that greater leisure and higher intellectual and moral life which are the product of economic efficiency.

The real problem of openings in the Orient, however, concerns more the employment of surplus savings of capital than the finding of markets for finished goods. To the manufacturer or the laborer who may fear the competition of Chinese, Japanese, or Russian cotton mills, there is at least this to be said,—that this competition cannot be more harmful than the needless multiplication of such mills within the United States, because capital can find no other investment. The demand for labor might seem for a moment to be increased by the needless multiplication of mills; but the crisis of over-production would soon close a large proportion of both old mills and new, would bankrupt many mill owners, leave labor idle for long periods, and force it to compete against itself for such meagre wages as the surviving mills could pay. From the standpoint of the present laborer in an old mill the new competition would be peculiarly harmful, because it would be the old mills in most cases which would be driven to the wall. The new ones, by means of their modern con-

struction and more efficient machinery, would be able to sell at a small profit at prices under which the old mills could operate only at a loss. The only safe outlet, therefore, for surplus capital seeking profitable returns is in countries which lack the modern mechanism of production and exchange, and promise rapid strides in economic efficiency if they are dowered with the savings of countries which are already thus equipped.

The question is sometimes asked, how will China or the Philippines pay for American goods sent to them? The question is based upon the fact that their present purchasing power is small and that they will not be able to make adequate return for large deliveries of American products in their markets. The figures may be cited to show that the trade of the Orient with the United States is a trifling fraction of the trade of the older countries with the United States. But this is far from closing the argument. What China will pay in is answered by the organization of modern finance. Other countries have been poor when they began to borrow foreign capital. The same question now asked in regard to China could almost equally well have been asked regarding the United States early in the century or regarding Australia within a generation. If they had been compelled to pay in full for all that was sent them, their purchases from the civilized countries would have been small and their development slow. If the farmers of the Dakotas had not been able to employ English capital,—or indirectly to get the benefit of English capital, by its employment in American enterprises which released American capital for their use,—the Dakotas would have followed the early settlements on the Atlantic seaboard in the tardy development of their natural resources. But the mechanism of modern finance not only permits the direct loan of large sums to foreign countries for their development, but even encourages the constant reinvestment of the interest earned upon these loans. Such loans are not advanced in the main in coin or bullion, but in agricultural machinery, rails and railway equipment, bridges, and the means of support for laborers.

The individual investor in loans abroad may desire to have his

interest paid to him as an income in money in his own country ; but other investors, with new capital to loan, provide the funds for these interest payments by the new countries and thus they accomplish in effect the continued use not only of the first capital lent, but of the interest upon it. Thus, while there is reasonable assurance of the solidity of the new enterprises, and while each enterprise may pay dividends upon its own operation, the sum of these dividends is constantly applied to new enterprises in the borrowing country. It is not surprising that by this process the development of the western part of the United States, Canada, Australia, and Siberia, has proceeded with bewildering rapidity ; and that almost in the twinkling of an eye they have been far on the road towards economic independence and the ability to repay the capital advanced to them from the old countries.

To put the matter in a more concrete form, let it be supposed that \$1,000,000,000 in American capital was invested in China. If interest on this amount was regularly paid at four per cent., the sum of \$40,000,000 a year would have to be exported in Chinese goods to the United States, or in Chinese goods to some country which exported \$40,000,000 of its products to the United States. The net balance would need to be the same, even though the movement either way was much larger. But this statement of the problem would assume that the investment was made once for all and was never increased. In fact, new investors would be constantly coming forward, offering the loan of their surplus savings for enterprises in China. Let it be supposed for convenience that these new offers in a given year were just \$40,000,000. The first investors might prefer to spend their dividends in the United States to reinvesting them in China. It would be simply a matter of international exchange to transfer the money of the new investors in the United States as dividends to the old investors, leaving in China not only the principal of the original loan, but the interest earned upon it. From the national point of view, China would apparently be paying nothing for the continuous use of the first loan. This would not be

true, however, of any single enterprise. If dividends were paid, the proceeds would nominally be remitted to the investor in the United States, while new enterprises would be financed by money coming from the United States. It would be the function of the banks and exchange houses to reduce the operation to the basis of clearing one transaction against another.

The element of the problem thus far ignored is the fact that the obligations of China to the United States would be constantly increasing. But her power of production would be increasing in an even greater ratio, so that she would be a gainer by the operation in spite of her growing foreign debt. The time would come when she would be able to export more than she imported and buy back her securities, as the United States have been buying back theirs within the last few years by their great excess of merchandise exports. The effect of the investment and reinvestment of American capital in China under such conditions would be to ease the social and economic pressure in both countries. In the United States the first investors in China would spend their dividends in the increased consumption of American products, increasing the demand upon the domestic market and the opportunity for the employment of labor. Those who had new savings would find use for them abroad at a fair return instead of duplicating at home the already sufficient machinery of production and exchange. In Australia, according to official computations, the amount due abroad increased from 1871 to 1898 by nearly \$15,000,000,000 (£294,212,000) while the actual net inflow of goods and money was only about \$50,000,000 (£10,377,000). But this increase of burdens by the process of reinvestment in Australia of interest due abroad, was many times offset by the means which it afforded for building thirteen thousand miles of railway, and thirty-five thousand miles of telegraph lines, developing an annual production in 1897 of \$550,000,000 (£114,463,000), and equipping 4,500,000 people with a greater producing and consuming power than that of any other nation.

The statistics of present or recent trade between the older

civilized countries and the Oriental countries have only a limited bearing upon the merits of the question, whether profitable use for capital can be found in the undeveloped countries. If an example is needed however, that the equipment of the new countries with the full machinery of modern production and exchange makes them valuable customers of the older countries, it is found in the history of Japan. Her export trade to foreign countries was only 14,543,012 yen (\$14,500,000) in 1870 and her imports were only 33,741,637 yen (\$34,000,000). It was after 1876, when orderly government under the Mikado had been restored, that Japan rapidly acquired the arts and sciences of modern civilized nations and seemed to spring, like Minerva from the brain of Jove, full armed into the field of commercial competition. Her exports of Japanese products rose to 64,891,683 yen in 1888 and her imports of foreign products almost exactly balanced, at an amount of 65,416,235 yen. Within ten years, in 1898, exports had much more than doubled and imports had increased fourfold. The former were 162,903,212 yen (\$81,000,000) and the latter were 277,270,729 yen (\$139,000,000).¹ Exports to Japan from the United States alone rose from \$2,552,888 in 1880 to \$17,264,688 in 1899. If the question is asked, therefore, with what means the undeveloped countries will pay for the products of the advanced countries, the answer is twofold. First, the undeveloped countries will rapidly acquire purchasing power when they are equipped with modern producing power; second, they will borrow from the older countries their capital, largely in the form of machinery and products, at once paying interest upon the capital and affording a market for the products in which it is lent during the process of development.

The capacity of the undeveloped countries for the absorption of the capital of Europe and America, in creating the splendid equipment for production and transportation with which the older countries are already supplied, is great enough to tax the accumulated resources and the saving capacity of the older countries for many years. With great canals to be constructed,

(1) The value of the yen in gold changed at different dates.

with railways projected from Cairo to the Cape in Africa, across Arabia to British India, across the Sahara Desert from the French possessions in Algeria and Tunis to the heart of "the Dark Continent," and with the infinite possibilities of China opening before the world, there will be no dearth of opportunity for the investment of capital nor for its productive earnings as these investments are transformed into completed routes of communication. Riches of agricultural production, heretofore untouched, will be developed by modern methods of culture for the benefit of civilization, and the purchasing power of the backward peoples acquired by the sale of their products will make them profitable purchasers in European and American shops and factories. Some hint of these possibilities is thus set forth in the "Economic Retrospect of the Nineteenth Century," recently presented by the distinguished editor of the *New York Journal of Commerce*, Mr. William Dodsworth:—

"China's population is about 50,000,000 in excess of that of combined Europe; and yet Europe's railroad plant has cost \$16,500,000,000. The cotton mills of Europe have made a capital outlay of fully \$1,200,000,000. The iron investments of Europe aggregate approximately \$1,800,000,000. These facts, relating to but three industries and yet covering \$19,500,000,000 of industrial capital, suggest the magnitude of the investments, from foreign sources, that would be needed to develop the varied resources of the Celestial Empire to an extent proportioned to its natural wealth, its population, and the thrifty habits of its people. The reconstruction of a nation of 450,000,000 inhabitants would be a magnificent achievement for a century of development and would immensely augment the trade and wealth of the world."

If the reasoning is well founded, that new markets and the necessity for new fields for the employment of capital are essential to keeping in healthy action the social and economic system of the United States, it is plain that equality of opportunity in the Orient is one of our vital problems. This equality of opportunity is what the United States have sought from the beginning of their recent interest in the affairs of Asia. It was frankly recognized in the treaty of Paris, by which peace was made with

Spain, as the proper policy for governing our eastern relations. Subjects of Spain were granted, for ten years, the right to trade with the Philippines upon the same terms as citizens of the United States. This meant, under our pledges to extend to other countries the privileges of "the most favored nation," that all that was granted to Spain in this respect was granted also to all commercial nations. When this indication of our liberal policy was followed up by the celebrated correspondence between Secretary Hay and foreign governments regarding "the open door," the United States were committed definitely to the policy of economic freedom in the Orient. It was a new and striking departure for this country, but was substantially the only means of safeguarding our interests in the East unless we had entered into a struggle with some of the continental powers for Chinese ports and exclusive "spheres of influence."

How much has since been done for enforcing upon other powers the policy of equality of opportunity in the Orient, is known to few persons, even of those who have closely followed the negotiations between the powers in regard to China. The United States may reasonably claim to have been the keystone in the arch of freedom of trade in China. It has been necessary, however, not only to keep the keystone firmly planted, but to resist efforts to remove other stones, by which might be symbolized the continental powers, to prevent the whole arch from toppling to the ground. It is doubtful if any other power could have accomplished what has been done by the United States in this direction. This country has entered the court of Chinese negotiation complying, as no other power could do, with that rule of law, that a suitor should come with clean hands. Our purposes are not suspected, because they are plainly avowed, they appeal to the sense of justice of all peoples, and it is known that they hide no purposes of spoliation or aggression. To keep in restraint half a dozen other powers, eager to take advantage of each other or to spoil China in common, has been no trifling task. That the government of the United States has succeeded in it, even imperfectly, up to the present time, is a remarkable achieve-

ment, whether it is followed by ultimate and complete success or not.

The time is close at hand when China is to be opened to civilization and to modern methods of trade by some means or other. There may be said to be three possible avenues along which this development may occur: first, by partition by the powers; second, by a progressive Chinese administration at home; third, by imposing upon China by the concert of the powers the policy of equal opportunity for the people of all civilized states in trading and securing franchises. The first of these policies obviously involves discrimination without limit and the building of walls of exclusion around particular strips of territory,—the adoption of a policy which is only a little less Chinese than that of the Chinese to-day. The second alternative, the development of China from within, is among the possibilities of the near future. It is becoming clear to enlightened Chinamen that they must at least equip themselves with some of the machinery of modern production and defense if they are not to be overthrown and divided up by the great civilized powers. Appeals to European experts in diplomacy, finance, education, railway construction and many other matters are likely to be made within the next decade with almost as much earnestness by China as they were made a decade or two ago by Japan. The United States could have little fault to find with this process of internal development if the diplomatic policy of China was directed to equal rights for Americans with the people of all other nations.

The American government is in a better position to tender suggestions to China regarding her future policy than any of the cormorant states which have seized her ports, killed and outraged her people, or demanded excessive indemnities for the privilege of spoliating the cities of China. The United States, moreover, are beyond the suspicion of courting an Asiatic power, as Russia might be suspected of doing, from the selfish motive of winning her favor at the expense of civilization. Every enlightened Chinese statesman knows, and every European student

of the subject knows, that the policies of the United States in regard to trade and political rights in China will be directed, at least in intent, towards the single end of the advancement of economic freedom and modern civilization. Such partiality, therefore, as the government and people of China may feel towards the United States, cannot be attributed to the sordid motive on our part of sacrificing the interests of civilization to a selfish national policy.

If the vital interests of the American people in the Orient coincide with the interests of civilization, a double obligation is imposed upon them to protect their privileges and opportunities by whatever steps may be required to accomplish the end sought. Whether the United States should actually fight any other power because of developments in China is a problem which can only be answered in relation to events as they arise. Nations have repeatedly gone to war for much more trivial ends than the maintenance of open markets and economic freedom among four hundred millions of people. They have fought for national honor where perhaps the visible interest of only one of the humblest of their citizens or subjects was involved. The United States have been on the verge of several such conflicts and, if war has been averted, it has been in many cases because it was known or feared that she would fight rather than abandon her rights under the law of nations. Similar questions may easily arise in the future in respect to China or the Philippines. It is not probable, if they arise, that the American people will show themselves more craven than when Preble and Decatur brought the Barbary pirates to their knees or less generous than when they voted a special customs tax to protect their commercial interests in the Mediterranean. The War of 1812 was fought finally for the vindication of national honor, but the differences which brought it on involved distinctly commercial questions. Great Britain contended for the supremacy of the seas which had long been hers, but which American vessels sought to wrest from her under the privileges of the neutral flag. John Adams, the first of Federalists after Washington, and Thomas Jefferson, the

greatest of Democrats, were at one in the idea that freedom of navigation on the ocean and the right to trade to the ports of the world were privileges worth fighting for.

The struggle for commercial opportunities is constantly growing more intense, with the increase in the population taking part in the struggle and in the importance of the prizes contended for. Important changes in the economic relations of the leading countries of the world are threatened during the twentieth century as the result of new routes of communication and the discovery of new sources of raw materials. One of the most important elements in the economy of the future will be the ability to obtain cheap fuel supplies. If it becomes increasingly difficult to extract coal at a reasonable cost from the mines of Great Britain, Belgium, and other European countries, those countries will face the possibility of disasters extending beyond the limits of a temporary crisis and reaching the point of final economic collapse. Economic changes of a similar character in routes of communication, supplies of raw material, or the sudden rise of more efficient rivals have repeatedly in the history of the world shifted the centre of exchanges and transformed a great commercial city into an almost deserted village. To economic causes of this character may be ascribed the fall of Tyre as the mistress of the Mediterranean, the decline of the power of the Greek cities of Asia Minor, the transfer of the seat of the Roman Empire from Rome to Constantinople; and in more modern times the successive rise and fall of Venice, the ports of Spain, and the busy maritime cities of Flanders.

Changes in routes of communication contributed in many of these cases to cutting off economical supplies of goods or raw material and making it cheaper to manufacture in rival ports. It is worthy of serious consideration whether Europe is not now approaching a catastrophe of this sort in the competition of the United States, and whether both Europe and America may not face potent rivals in Central Asia when the trans-Siberian railway has linked the Baltic to the Pacific and branches have been extended to the Caspian Sea, into the heart of India, and across

the fertile and populous provinces of China. It is perhaps impossible for the most comprehensive and accurate judgment to anticipate with precision the nature and direction of these future changes in the axis of the world's exchanges. It is obvious, however, that if centres of trade are to arise in Central Asia, if plentiful raw materials are to be found there, and if virgin coal supplies are to contribute to cheaper production, the United States cannot afford to be excluded by the political policy of other powers from a proper share in these opportunities. Nothing in life is so vital as the struggle for existence. It is this struggle to which some of the European powers are becoming aroused by the increasing difficulty of production at home which is economical enough to supply the needs of their crowded populations and permit effective competition with other countries. These European countries, especially Great Britain, learned long ago that they could not raise the food supply of their people so economically as it could be raised in the less developed countries. They followed the lines of least resistance in turning their attention to manufacturing, in which they long held the mastery by training and skill, control over sources of raw materials, and command of the necessary capital through their organization of the system of credit.

The European countries, having surrendered to a large degree the function of food producers, are now threatened in their later function of manufacturing. A large surplus population, paying high prices for food in proportion to that paid in the food producing countries, have for half a century offset this disadvantage by their efficiency in other directions. Losing this efficiency,—not absolutely, but relatively, because of the improved efficiency of their rivals,—they seem to be approaching a point where their products no longer exchange for the same quantity of food and other articles to which they have been accustomed. The use as an argument in this connection of the balance of trade in favor of the United States during the last three years is subject to many qualifications, but the persistence of this balance may prove to have a bearing upon this vital economic problem. There is force in

the suggestion of the late Professor Dunbar, that the intensity of the demand for American products by European countries is much greater than the intensity of the demand for European products by the United States, because what Europe takes is largely food, while what the United States take consists largely of luxuries.

The United States occupy an exceedingly favorable position in the struggle for supremacy in economic life. They are a young country, with natural resources still only slightly trenched upon, and with their food supply at their own doors. There is no reason why they cannot surpass the European countries in all the elements required in the production of all classes of goods, except those under the head of artistic skill, in which they are constantly gaining ground. It is of the first importance for this country as well as the European countries that the foreign market should be open everywhere, not merely as an outlet for the surplus of finished goods resulting from machine production, but as a field for the investment of the surplus savings which result from the world's greatly increased producing power. The problem of the shifting of the centre of the world's exchanges by the exhaustion of sources of food and coal supply, may seem too far distant to be dealt with by the economists of to-day; but it is obviously one of the controlling motives of the European countries in seeking new establishments in Africa and Asia. Some of them evidently hope to find in these establishments new and fertile sources of food supply, fuel, and raw material, and to ease the pressure of the social problem by sending to their new possessions a part of the growing number of hungry mouths, which they are finding it increasingly difficult to feed at home. The United States would not need to compete with the older countries in colonization, if these countries would offer us an open market for our surplus production of goods and capital; but the refusal to grant this freedom imposes upon us the duty of resisting, even by force, if the accidents of national policy and national honor require it, the slamming in our faces of the door of economic opportunity in the Orient.

NIETZSCHE AND DARWINISM

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ACCORDING to certain philosophers, Nietzsche was the first to deduce from Darwinism logical conclusions for the guidance of the individual and social life.¹ Darwin himself, they maintain, was deceived in his own doctrine. He believed this was compatible with humanitarian as well as with Christian ethics; but a series of English and German thinkers have drawn new deductions from Darwinism, which have resulted in the system of Nietzsche. This latter, they say, has finally stated the general principles of a truly evolutionist morality, which is anti-humanitarian, anti-democratic, anti-Christian, and, much more, anti-moral, or *amoral*. Let us see if it is true, first, that the ethics of Nietzsche are the expression of Darwinism, and, secondly, that social Darwinism, as understood by the partisans of Nietzsche, is a really scientific morality.

Cannot the views of life, of vital evolution, and of selection lead to a wholly different morality from that which Nietzsche upheld? We find an example of this in a French thinker, who was a predecessor of Nietzsche, but who drew entirely opposite deductions from Darwinism; we speak of Guyau. Tille, in his book, in which he runs over the series of thinkers from Darwin to Nietzsche, hardly speaks at all of the French thinkers. He doubtless feels that the latter have not followed, in general, the venturous wanderings of the English and German thinkers.

(1) Tille, *Von Darwin bis Nietzsche*, Leipzig, 1899.

In fact, it is in France that we have especially protested, are still protesting, and, for our part, will continue to protest, with Guyau, of whom we shall speak later, with Tarde, and with Durckheim, against the pretended conclusions drawn from the Darwinian principles by those who adore the right of might, eternal inequality, eternal oppression, and eternal warfare.

I.

Nietzsche, who, moreover, always took care to represent his doctrine as absolutely new, without predecessors or "teachers," ranked himself as an anti-Darwinist. It is certain, that, in a general way, he was opposed to English morality and to the doctrines of Darwin and Spencer. His opposition is founded on the idea that he himself forms of the very essence of life. This idea is, in its turn, borrowed from Schopenhauer, although Nietzsche placed himself in opposition to Schopenhauer, as well as to all other philosophers. Schopenhauer, as we know, laid the essence of life in the will, and, more particularly, in the will to live. Nietzsche objected to this, for the being who lives has no need of *will* to live. But, to tell the truth, Schopenhauer meant by will-to-live, the will of a life as *strong* and *varied* as possible under the forms of *space* and *time*. But it is precisely this same tendency that Nietzsche attributes to all will. Only, he has chosen to characterize this tendency as the "*willing of power* or *domination*." Is this a happy correction? We do not think so, for power is only one of the means and effects of life itself. Nietzsche did not the less agree with Schopenhauer as to the main point.

In his objections to Darwin, Nietzsche was also inspired by the German physiologist Rolph. According to him ("Biologische Probleme"), the struggle for *life*, as Darwin understood this, is not the first force of development, but it is rather abundance. Every race of animals increases as the animal appropriates to itself more nourishment than it needs for its preservation; and as it is, consequently, able to realize an increase of development, only then do the need and struggle intervene, and limit them-

selves to producing a selection among the already preëxisting variations. How, then, do these variations arise? It is only, says Rolph, through the effect of more abundant nourishment than is necessary for the maintenance of life that a variation is possible, and this more abundant assimilation of nourishment can only be produced when the needs or desires of the individual reach beyond what is absolutely necessary to him to live. We gather from this, according to Tille's observation, that the struggle for existence is not merely a struggle to maintain *life*, but a struggle to augment the reception of nourishment and the intensity of life; and also that it is not merely a struggle for defence, but, further, and, especially in the animal kingdom, an offensive struggle, which only under certain conditions takes the form of defence.¹

Nietzsche has adopted Rolph's ideas. "Where there is struggle," he says, "it is for *power*. * * * We must not confuse Malthus with nature." The Darwinian struggle for *life* seemed to Nietzsche to be asserted rather than demonstrated, at least in so far as an universal law. It appears, to be sure, he says, but "as the exception." According to Nietzsche, as well as to Rolph, the general aspect of life is not indigence or famine; on the contrary, it is wealth, opulence, and even absurd prodigality. Rolph had expressed the fundamental tendency of life by "insatiability"; Nietzsche expressed this by an equally insatiable "will for power," one which would be always striving to exceed itself.

According to these premises, the philosophy of Nietzsche, like that of Schopenhauer, is a veritable dynamism; by that means it is opposed to the pure mechanism of Darwin and Spencer. Nietzsche reproached the Darwinian physiology and biology for having "pilfered" the fundamental conception of activity. To him, the English school labored under the pressure of a kind of "idiosyncrasy," the aversion "for all that commands and would command"; instead of putting activity and power at the head, they put there what they call "the faculty for adaptation." But, said Nietzsche,—and here he touches directly on the essen-

(1) *Ibid*, p. 221.

tial fault of Darwinism and Spencerism,—the faculty of adaptation is only an activity of the second order, a simple “reactivity.” And, Spencer has defined life itself as “an inner adaptation, always more efficacious, to exterior circumstances.” But we can reply to Spencer, that in order to adapt ourselves we must begin by being, acting, and by wanting something. Nietzsche caught a glimpse of this truth, which makes all mechanism of adaptation a secondary and ulterior process of life; but he himself fell into the same sort of error as Spencer, when he defined the imminent activity, which is life, as “a will for power and domination”; for domination itself is only the adaptation of others to self, a derivative and secondary mechanism, a sort of makeshift, which we employ because we are obliged to use it before opposition. Nietzsche was right in admitting “the fundamental preëminence of forces of a spontaneous order,” but he was not right, in the same phrase, in defining them as “the forces of an aggressive, conquering, and usurping order.” He was right in affirming the “sovereignty of the most noble functions of the organism, functions in which the will to live shows itself active and creative”; but every creative activity is not in its essence aggressive, although, in a world where the forces are at war, struggle itself may be the accident which is nearly always added to the essence of life, at least in the material order. The true philosopher is, indeed, he who knows how to distinguish the groundwork of activity from the exterior forms which outside circumstances impose upon it. If this is so, can we say that Nietzsche truly and philosophically understood the “power” and insatiable “activity” which are the ever-beating heart of life? Do we want only power as power, without caring to add power *for what*? Are we indifferent to power to enjoy, power to think, and power to love? Nietzsche reproached Spencer for the emptiness of his mechanism, and he saw even nihilism in it, but he is himself ceaselessly repeating “*power, power*”; repeats a word that, by its definition, is equivalent to nothing; for what is a pure potentiality? Nietzsche himself is, without wishing it, a nihilist. Fascinated by the idea of this un-

folding of a power, Nietzsche shut his eyes to the aim pursued by that power, and which is always some form of enjoyment, be it only enjoyment in itself and in its own unfolding. "Life," he said, "is for me the instinct of growth, of duration, of the accumulation of strength, the instinct of power." An incomplete definition: life is not merely, even with animals, the instinct of growth; for nutrition, which is properly the means of growth, is only one of the primordial functions, in some sort the centripetal, and it does not hinder the instinct of reproduction, which is the centrifugal function, pointed toward others, and always ready to become love.

Every deed accomplished in the organic world, Nietzsche pretended, was intimately connected with the ideas of subduing and dominating. We do not see, we would reply, that respiration is a domination, that the spontaneous movement of a child at play is domination. Neither do we see that generation is an exploitation of any kind. Activity constitutes the main part of life, nothing is truer; but that all activity should necessarily be oppressive and destructive, just for the pleasure of attacking and destroying, that is to confuse one of the accidents of evolution with the law itself of evolution; that is to make hunger man's only motive-power and to forget the other side of the physical life, generation and love; it is to strike out with a single sweep of one's pen, besides half of the physical life, the whole intellectual life (for to think is not to destroy) and the whole moral life (for to be united to others is not to destroy).

What, then, do we learn from this scientific biology, of whose more recent researches Nietzsche knew nothing? Claude Bernard considered destruction and construction as equally essential to the living cell, so much so that life is death and death is life. He admitted that the life-processes of the cell are connected with the phenomena of destruction, as in the case of the candle that burns and consumes itself in order to give forth light. But the most recent works on biology tend to show that the function which constitutes vital actions of all kinds is connected with construction, to which destruction is only an accompaniment. Consequently,

the negative idea of destruction is not, as Nietzsche believed, essential to the idea of life. On the contrary, it is the positive idea of affinity, of an assimilative function, which predominates. Life is essentially a synthesis, consequently, it is concord and harmony. To live is to construct and to unite; it is not necessarily to destroy, except in the measure that destruction may be the preliminary or concomitant condition of construction, the evil necessary for good. Therefore, the morality of life,—what we might call practical biology,—is not by itself and in its essence what we would call a code of destruction. The very idea of destruction is not absolutely fastened to that of construction, as in an insoluble antinomy; it remains secondary, while the other idea is principal, and practically results in harmony.

According to what precedes, is it exact to define life by hunger, or even, as Rolph and Nietzsche uphold, by insatiability? The living cell works, repairs itself, and is divided; these are its three essential characteristics; but, as we have just seen, it is work which is fundamental, and not nutrition; it is the working, it is the synthesis with production of movement, and not the borrowing of energy from outside by nourishment. Even for the locomotive, the essential thing is the work, not to receive coal in its grate or water in its boiler.

The functions of nutrition and reparation are still only the first balancing of the pendulum of life. The second balancing is toward the generation of new lives; it has no longer, for the spectator, the objectively selfish direction of primitive hunger. The essential fact of reproduction is the separation of a part of the parent organism, destined to begin a new life. This separation implies a rupture, a kind of crisis, and, materially, of sacrifice. The cellular division, which is occasionally the *résumé* of the act of reproduction, and which always accompanies it, is a yielding up of a part of the self, and resembles a death of this part for what remains. Indeed, at times, reproduction entails absolute death, and we know how strongly the naturalists insist upon the intimate relation of love and death, which furnished the theme for Leopardi.

Littré, and Guyau after him, connected egoism with the desire for conservation, and altruism with desire for reproduction. In other words, egoism is the individual; altruism is the species. It is certain that we must admit a gravitation to self and also a gravitation towards others.

Surely it is necessary not to confuse altruism with sexual love; but, from all the facts which precede, we can not the less conclude that hunger, properly so-called, is not really the main point of existence; that the direction towards self is not the only orientation of the animate being; that, in the internal organs themselves, and in the "organic" life of Bichat, there is already room for relations *to others*; that, in a word, biology does not justify the unethical conclusions that they would fain deduce, but shows rather the effort of men to overcome the egoism in which Nietzsche wrongly desires to imprison them. Consequently, all the theories which seek to justify an exclusive and absolute egoism in the name of biology rest upon an inexact interpretation of phenomena. To live is to act, but this does not imply that it is always action for the self alone.

II.

The view that Nietzsche took of human society is as inexact as is his view of individual life. Nietzsche pretends that "the strong seek to separate themselves, just as the weak seek to be united," that, if the first-named form a society, it is in view of "common aggressive action, for the common satisfaction of their will for power." "Their individual consciousness," adds Nietzsche, "is very inimical to this action in common"; the feebler ones, on the contrary, place themselves in close ranks for the pleasure that they feel in the grouping,—their instinct is satisfied by this; quite to the contrary, the "instinct of the *masters* by birth (that is, of the human species, *an animal of prey and solitary*) is irritated and thoroughly troubled by organization." Thus, according to Nietzsche, would the old definition of Aristotle be overthrown, which held that in order to live alone, one must be either a brute or a god. Instead of affirming that man is naturally sociable,

Nietzsche upheld that he is by nature unsociable. Yet the great carnivora, that are Nietzsche's ideal, have a family, which, indeed, is the beginning of society. Monkeys, who do not rank inferior to tigers in intelligence, live in society. Primitive men themselves, so far as science can attain to their traces, lived a social life. And yet Nietzsche hopes to make us believe, by a romanticism of solitude, already a premonition of insanity, that man is an essentially solitary being! Rousseau had already claimed that the man who thinks is a depraved animal; Nietzsche, in his turn, claimed that the man who loves society and his fellowmen is a depraved animal! Rousseau's successor, astray in our times, tells us as a novelty that civilization, by making men a drove of beasts, and especially moral beasts, has caused the decline of the human species. It was fortunate for us, according to him, that we had the Borgias and the Bonapartes, but, alas, in insufficient numbers, so that the work of these "masters," benefactors, and regenerators, has been contradicted and annulled by the "servile" herd.

It would be an error to affirm dogmatically that strength in a being necessarily makes of it an isolated being, and that the tendency of the truly strong is to isolation. What would remain over, we may ask, from the thought of Nietzsche himself, who dwelt apart, as he imagined, in a certain lonesome grandeur, if we were to subtract from his system all the contributions to it of the common human herd,—a herd that must include, of course, such philosophers of our own times as Schopenhauer, Stirner, Renan, Guyau, and many others, who are the source from which he has drawn so large a number of those ideas out of which he has fashioned his paradoxes? Profoundly just is the assertion of Auguste Comte, that he who declares his independence of other men inflicts a contradiction upon himself in the very utterance of this blasphemous conception, in that the words which he uses are the fabrication of others. However sincere may be Nietzsche's persuasion of his own originality and individual genius, the fact is none the less assured, that he speaks the language of the Kants and the Hegels whom he so much affects to

despise. Every unfortunate who longs to be emancipated *from* society fails to perceive that this emancipation, for which he is striving along a false way, can be attained only *in and through* society.

If man is unsociable by nature, the result is that he is naturally the adversary of his fellowmen and constantly at war with them. Although Nietzsche claimed not to be a follower of Darwin, he agrees with him as to the importance of *struggle* in social evolution. Doubtless it is not merely for Nietzsche a struggle for the simple preservation of life, but, more especially, a struggle for the indefinite increase of power; nevertheless, this difference between Nietzsche and Darwin changes nothing of the result, which is always an apology for universal warfare between men and for desperate competition, either for existence or domination. "Struggle ceaselessly and continually," Zarathustra teaches his disciples. "You will seek your enemy, you will fight your battle. * * * You will love peace as a means of new wars, and short peace rather than long. * * * I do not counsel you to work, I do not advise you to make peace, but victory. May your work be war and your peace victory. * * * A good cause, you say, sanctifies war itself, but for me, I tell you that it is a good war that sanctifies every cause."¹ * * *

The philosopher does not promise men peace and the tranquil enjoyment of the fruits of their handiwork; but he exhorts them to warfare, and makes their eyes glisten with the hope of victory.

In what *limits* and by what *means* has the Darwinian law of competition and struggle manifested itself in humanity? All depends on our answer to this question. If it is contrary to science not to take into account the resemblances between humanity and animalism, it is no less contrary to science not to take the differences into account. It is no longer an exact calculation, if we do not calculate *all* the positive or negative values. It is what Darwin himself always tried to do. Is it true, then, as Nietzsche believes, that in sociology struggle is more fundamental than

(1) *Also sprach Zarathustra*, p. 67.

union? Nietzsche forgot that living beings must first live, and that in order to live they must first be born, born of parents whose duty, without doubt, was not to struggle among themselves, nor to devour their offspring. The ties of relationship are anterior to all the conflicts between individuals and between species. Consequently, the field of competition does not embrace that of the family. Here the feeble, instead of being sacrificed, are protected by the strong, who are always ready to sacrifice themselves for the weak. The mother, father, and children do not struggle *against* each other for life, but struggle *together* for life against exterior obstacles.

The greater part of the naturalists have recognized in the attraction of the strong for the weak one of the most important facts of animal life. Spencer even goes so far as to regard the tenderness for the weak as the *source* of maternal love, which is an exaggeration. Bain observed that the attraction for the feeble ones is not merely inherent in the gregarious condition, but essential to every social system. Darwin himself saw the importance of this feeling. The love of the weak is one of the most important of the social forces. Here is a new proof of the falseness in the brutal conclusions drawn by Nietzsche from Darwinism.

The prolongation of childhood in the human race, and especially in the superior human races, renders education both necessary and possible. But education has nothing which recalls struggle; the relation between the teachers and those whom they teach, is a relation of mutual sympathy, of help and example with one, and of imitation with the others. This reciprocal adaptation aims at union. This is a new refutation of Nietzsche by facts themselves.

If we consider the relations between fellowmen, drawn together in hordes or clans, we shall by no means see only that the action of man on man begins, as Nietzsche upholds, by conflict. Similitudes engender in the beginning sympathies and synergies, not struggles. Society exists first *de facto*, then it is accepted by its various members, who change necessity itself into a matter of

choice. As to imitation, which has nothing to do with aggression, and of which Nietzsche does not say a word in his books, it produces or enforces agreements far more than conflicts; besides, it plays its part in the conflict itself, and changes struggle to a means of socialization. According to Mr. Giddings' observation, when two men fight, each instinctively copies the blows of the other; so, when two armies wage war, each repeats the other's manœuvres.

Besides, every struggle implies a waste and loss of vital energy, and of "power," just as every collision and friction of a machine implies a loss of vital force. From this very fact, that life, according to Nietzsche, tends to reach a maximum of development and energy, it should also tend to free itself from conflict, in favor of a mode of action which, instead of turning the various forces against one another, makes them converge towards the same end. The aim of evolution is not struggle, defensive or aggressive, nor is this its only means; it suffers this, on the contrary, only as a more or less provisional necessity; it replaces struggle, whenever it is possible, by coöperation, which, instead of taking away one force from the other, adds and totalizes the forces.

Let us consider, finally, the object both of struggle and coöperation. Animals struggle and coöperate only for existence, as Darwin maintained; if, in addition, they gain development, this development has not an aim, but a *concomitant* effect, which is caused independently of their prevision. Men, on the contrary, do not struggle and work together merely to live, but to live better and to develop themselves. And this word *better* implies not only a greater "power for domination," as Nietzsche claims, but, much more, a development of the intelligence and of the affections. Consequently, it is not a simple struggle either for existence or for power, but for superior things, which add to the quality as well as to the intensity of life.

The unqualified admiration for evolution, natural selection, and the success of that which survives in the universal competition, should itself logically result in the admiration of altruism,

kindness, and philanthropy, since all these have been established in the heart of humanity, since coöperation, opposed to both competition and natural selection, has itself been evolved by selection, since struggle against struggle has been the final result of struggle. When Nietzsche preaches severity instead of gentleness, he does not see that gentleness has been, and will be more and more, a stronger force than severity.

III.

The theory of justice is not more "scientific" with Nietzsche than is his theory of life or of society. It is only, he says, since the institution of law that there may be a question of justice or of injustice. To speak of justice or injustice *per se* has no meaning; an infraction, a violation, a deprivation, and a destruction *per se* cannot evidently be something "unjust," from the fact that life proceeds essentially, that is, in its elementary functions, by infraction, violation, privation, and destruction, and that we can not imagine it proceeding in any other way.¹

Callicles and Darwin are here brought back to unity. But besides that "infraction" and "violation" have nothing to do with the development of life in beings without intelligence, such as plants or inferior animals, intellect and the will have been given to man to control the natural instincts of life. Nietzsche employs here the same force of reasoning as that savage whom a missionary endeavored to persuade that he should not eat his own wife, and who replied, "Do not the big fish eat the little ones? do not the strong eat the weak?" This savage invoked the same natural law as did Nietzsche. Even if justice be lacking among plants and inferior animals, this is no reason for considering it arbitrary or merely statutory. The "modern" Nietzsche informs us, along with the old Hippias, that it is through history we learn what is by right natural; he teaches us, with Thrasymachus, that there is no natural right but might; he does not even discern what Callicles could already distinguish, namely, that posi-

(1) *Généalogie de la morale*, p. 121.

tive laws can have been established only through having might on their side, whence it follows that positive laws are precisely the real natural ones, that the one superior might is, therefore, social might, not individual might, and, finally, that this social might is a force of union and of coöperation, much more than one of conflict and of death.

Originality, with Nietzsche, almost always begins with the morbid perversion of commonplace ideas. That all relations of law may be ultimately reduced to the primitive forms of purchase, sale, and exchange, in short, of barter, has been a familiar theory in Germany since Karl Marx, but a theory that is none the less erroneous. Nietzsche hastens to make it his own by exaggerating it to absurdity. That the *equivalent compensation*, which in uncivilized justice succeeds the principle of retaliation, should extend to the point of assuming an equivalent between a harm done and a suffering inflicted on the author of the harm, is a no less commonplace idea to any one who has read the law of the Twelve Tables, or who knows Shakespeare's Shylock: the creditor was authorized to cut off a piece of the debtor's flesh in exchange for the debt; *si plus minusve secuerunt, ne fraude esto*. How can one manage to prevent still further this already perverted justice? Nietzsche succeeds in doing so by offering it as a fair and logical application of his doctrine of the "right of masters." The "master's" satisfaction, granted to the creditor in compensation for his loss, is the superior joy which consists in exercising with full security one's power over a being reduced to impotence; it is the "delight in *doing harm for the pleasure of doing it*" (the italics are Nietzsche's); it is, finally, "the enjoyment of tyranny." And this enjoyment, if we are to believe him, is all the keener, the lower in the social scale the rank of the creditor, the more humble his condition; for then the feeling of superiority will be greater in the creditor; the piece of flesh "will seem to him more delectable, and will give him a foretaste of a higher social rank." Thus, thanks to the sentiment inflicted on the debtor, the creditor "partakes of the *right of masters*"; he ends finally, too, "by enjoying the *ennobling* feeling of being able

to despise and ill-treat a being as something *beneath him*." This is the foretaste of the Overman! "Compensation, then, consists in legal citation and a right to cruelty." It is thus that a commonplace of legal history becomes a monstrous paradox, and ends, in a diseased brain, in a sort of judicial and philosophical Sadism. Says Nietzsche: "To see suffering gives pleasure, to cause suffering gives still greater pleasure; this is a truth, and an old, powerful, and important truth, and human, too human."

If we are to believe Nietzsche, it is in this sphere of the right of compensation and of cruelty that "the world of moral concepts, *fault, conscience, duty, sanctity of duty*, has its origin. At first, like all that is great in the world, it was for a long while abundantly bathed in blood." Even in old Kant, "the categorical imperative smacks of cruelty." Such an interpretation of the evolutionary doctrine does not need to be refuted. If, in the opinion of the Darwinians, cruelty may have been useful at the beginning of humanity as a means of assuring the triumph of the stronger and more robust, it is clear that this rôle has been for ages useless, and that such a survival as cruelty would be to-day a blemish and a disgrace. Nietzsche does not, however, admit the theory dear to the English school, which makes justice come from a transformed instinct of vengeance. But it is because, according to him, the instinct of revenge is only a "reactive" emotion, a response, a reply, a return shock. What he wants is the spontaneous and initial shock, aggression. That is why he praises cruelty. As for justice, it is but a decline of strength, a resource of weakness, a ruse to defend oneself against those to whom rulership belongs by nature. The idea of justice comprises that of equity, which itself comprises that of equality; justice has as object to reëstablish a certain counterpoise between weak and strong in human society. The Darwinian principle of the triumph of the strongest is thus replaced by the rational principle of equality of *rights* between weak and strong.

The principle of equality! There is not, to Nietzsche, a more "poisonous poison." This doctrine of the French Revolution seems, he says, to have been proclaimed by Justice in per-

son, whereas it is the *death* of all Justice. "*Equality for the equal, inequality for the unequal.*" Thus speaks true Justice; and it adds logically, "*Never make equal what is unequal.*" Thus speaks Nietzsche with Renan and Taine. He does not see that the doctrine which he opposes to the Declaration of Rights is the very one which this Declaration contains. For it has never been a question of anything but equality of *rights* before the *law*. It is there proclaimed that all citizens should be treated "without any other distinction than that of their *virtues* and of their *talents*." Equality for equals, inequality for those who are unequal! Why, that is the very dogma of democratic law; it is the very definition of justice for the Turgots and the Condorcets as for Nietzsche! Not to make equal what is unequal, nor unequal what is equal, why that is the very maxim of equality before the law! If, with equal merit or equal demerit, you treat the rich man, the nobleman, and the master otherwise than the poor man, the man of the people, the "slave," then you are making artificially unequal what is equal, then you are debasing weights and measures by introducing factitious inequalities and forced castes, where minds, hearts, and wills are of similar value!

Nietzsche is right in opposing justice to the false leveling (which he wrongly confuses with the true one), but there exists, then, by his own confession a "truth" and a "justice," although he has repeated in every key that "nothing is true, everything is allowable," although he has placed the "True" and the "Just" among values of decadence, which drive humanity down instead of lifting it up towards the Overman! He is fond of heading his chapters, "The immoralist speaks." At the top of the page he might, by a fortunate contradiction have written, "The moralist speaks"!

"I dream," writes Nietzsche, "of an association of men complete and absolute, without tenderness, who would take to themselves the name of *destroyers*. They would submit everything to their criticism, and would sacrifice themselves to truth." This is, almost in the same language, the well known dream of Renan in the "Dialogues Philosophiques" and in "Caliban." But Renan had

imagined, with greater logic, that these absolute masters of humanity would be *scholars*, armed with all the weapons of modern science, even threatening the herd of human beings, if it dared to resist, with an explosion of the planet, by a touch of the electric button. Obedience or Death! The fancies of Renan amused his contemporaries, and doubtless he himself meant only admirable fooling. Nietzsche, on the other hand, who is quite the opposite of a dilettante, takes the thing seriously. He sincerely believes that an association of strong men, far from abusing their strength, would willingly sacrifice themselves to truth,—the truth of which he elsewhere denies the existence and worth! Nietzsche is a victim of the eternal aristocratic illusion, which consists in believing that the privileged beings of the social and political order are, by that fact, the best ones by nature or by will. However, the aristocracy of character dreamed by Nietzsche and Renan, which would comprise the energetic and strong, great minds, and even great hearts, is one thing; this aristocracy of birth and privilege is another. Who can assure to Nietzsche that they will coincide in a society where justice and pity are no longer the rule, and where the strongest alone have right on their side?

With Flaubert, with Renan, and with all the Romanticists, Nietzsche admits that a people is a roundabout way taken by nature to produce a dozen great men, and he lays down the principle that "humanity must always strive to produce individuals of genius; such is its mission, and it has no other." Very well, let us grant it, in spite of the contradiction in saying that humanity is made for some great men, whereas great men, in turn, have no value except through the service they do to humanity in lifting it to a higher plane. At any rate, there is one constant question, "How will you manage to bring about your great men?" We must not, Nietzsche now replies, leave to chance alone the task of bringing genius out of mediocrity; men must endeavor, with a full realization of the facts, to produce by *selection*, by an appropriate education, a race of heroes. "It is possible," says Nietzsche, "to obtain, by successful devices, quite different types

of great men, and more powerful than those which, hitherto, have been moulded by fortuitous circumstances. The rational cultivation of the superior man is a prospect full of promise." Thus artificial selection would be substituted for natural selection, the action of which is not sufficiently sure. As for the means of artificially producing Overmen, these Nietzsche, with good reason, leaves undetermined. It may well be doubted if, by any device, we can procreate heroes as we obtain races of superior horses.

Thus, neither natural nor artificial selection can guarantee the production of great men, destined to become our masters. Even if we had them, we should still need signs to discern their superiority. If we leave to them the care of asserting their preëminence, nothing assures us that *pseudo* great men will not manage to be the strongest or the most clever. Is it not, therefore, more simple to maintain the rules of common justice and of common righteousness, by leaving to superior ones the faculty of arising and of getting themselves freely accepted?

Such is not Nietzsche's system. He wants real "masters," and, at the same time, he wants "slaves." The production of an aristocracy, he says, implies an army of slaves. Slavery is one of the essential conditions of supreme culture; this, he adds, is a truth which admits no opportunity for illusions as to the absolute value of existence; this is the vulture which devours the entrails of the modern Prometheus, the champion of civilization. The misery of the men who to-day manage to exist with such difficulty must be still more increased to allow a small number of Olympian geniuses to produce great masterpieces of art. The progress of culture does not, therefore, result in relief to the lowly; the workmen of the nineteenth century are no happier than the slaves of the age of Pericles. Nietzsche thus reproduces, without criticizing them, all the ideas which were current in the days of Renan. But the very example which he gives of our workmen, compared with the slaves of antiquity, is the best refutation of the thesis, for we need only read, in Greek authors, accounts of the way in which the Spartans, the Athenians themselves, the Romans, the Egyptians, treated their slaves, to reduce

to its true value the paradox of those who believe in the eternal immutability of human conditions. It would be as sensible to maintain that famines are to-day as numerous and as destructive as they were in the Middle Ages. Fortunately, for this statement we have statistics, the figures of which do not lend themselves to poetry! In spite of what Nietzsche may say, servitude was a softening of slavery, the wage system is a softening of servitude, and to-day we are tending towards the suppression of the wage system in the interest of coöperation and association; that is to say, we are tending towards a greater justice among men and a greater equality of rights, which will ensure a greater equality of enjoyments.

IV.

Nietzsche is as hostile to charity and to pity as he is to justice,—he is even more so. Far from being the supreme virtue, charity is to him the abomination of desolation, “the beginning of the end,” that is to say, of decadence and of vital degeneration. He, moreover, unduly confuses charity with pity and with the sentimentalism made fashionable by Tolstoï and Dostoïevsky, by all the adepts of the “religion of human suffering.” Nietzsche first reproaches pity with not being unselfish, as it seems to be; we do good to others, he asserts, as we do harm to them, merely to have the consciousness of our power, to make them submit, in a way, to our authority. This interpretation by our new La Rochefoucauld is as inaccurate as was that of his predecessor, who saw in pity a reflection upon the sufferings we might some day experience and a means of making sure of another’s help. What Nietzsche finds is the instinct of power and the desire to rule. Even if this were the case, Nietzsche ought to be indulgent to a sentiment which favors a tendency, in his opinion fundamental and justifiable, to a desire to dominate everything. But Nietzsche has another reproach to make to pity, that of being a depressing feeling, which consequently lowers vitality. The reproach is well grounded only against false sentimentality and emotional pity, not true heart-pity. If “charity,” or even “pity”

meant only having gooseflesh at the sight of the grief of others and relieving them as a means of self-relief, it would, indeed, be a mere *passion*, and a debilitating passion, worthy of condemnation by the Stoics, by Spinoza, by Nietzsche. But true pity and particularly true charity are active, not passive; they are an act of courage in the sight of others, not of selfish cowardice; they are a voluntary participation in the life of others; hence they enrich our own life instead of diminishing it.

Nietzsche's last objection to pity and to charity is no more original than the previous ones. It is also that of some Darwinians who accuse philanthropy of being contrary to the true social welfare, because it favors the invalids, infirm people, and degenerates. But, in the first place, we may reply, if there are, indeed, abuses due to a faulty comprehension and organization of philanthropy, morality will be the very first to condemn these abuses instead of raising them to the rank of duty. It will side with Nietzsche himself. If, for instance, criminals or criminal lunatics are to-day too well treated and too leniently punished, on the ground that they are not metaphysically responsible, the moralist will be among those to complain, not those to admire. He will not need for that to become, as Nietzsche says, an "immoralist." If free rein is allowed to all degenerates, "creators of disorder and disorganization," if they are given an equal vote with the best educated and most honorable men, if the government itself tends to the increase of degeneration by laws increasing the freedom of saloons, by giving full sway to pornography, to a licentious press, to music-halls, and all resorts of vice and infamy, will "philanthropists" applaud? Are there not severities which are the best of philanthropies, and must we not say of all society, that she loves much when she chastises much?

As for the asylums for incurables, which in modern civilization are accused of taking bread away from the strong to give it to the infirm, we must here recognize one of the forms assumed in human societies by the respect for human work and human personality, by fellow-feeling towards workmen, even when incapacitated and infirm, by the religion of humanity. This

religion, which Nietzsche attacks with jeers and curses, is by no means indifferent to the social bond and to human solidarity. Not to mention that the sick, the infirm, the hopelessly incurable even (some of whom are so only through the defects of our present knowledge), are subjects of investigation for science, physiology, and medicine; if hospitals are useful in improving our knowledge of the organism and the art of treating it, then one must acknowledge that philanthropy is laudable, just as the self-sacrifice of physicians who tend the plague-stricken and study on the spot the microbe of the disease. *Social utility* is not a short sighted utilitarianism which sees only the individual fact, the interest of the present time or place; for society is not limited to one time or place. We must lift our gaze higher and acknowledge that the love of humanity, even in the person of its inferior members, deformed or guilty, is not useless either to humanity itself or to the *élite*, to which Nietzsche is willing, if necessary, to sacrifice humanity. Must we regret, with Nietzsche, that puny or misshapen children are no longer exposed to perish, that lepers are no longer cast out? The incurables of to-day may be healed to-morrow. By treating their diseases we may perhaps find a way to heal other diseases. In science utilitarianism is fatal; if everything had been a measuring of utility, instead of a search for truth, nothing would have been discovered. The truths which at first appeared most useless have turned out to be the most necessary. Medical and social sciences are like all the others; do not incessantly ask of them "to what end." The future alone can give an answer.

Statistics are far from testifying to the general weakening of vitality, of which Nietzsche speaks, as a result of a philanthropy which has saved the weakest organisms. On the contrary, they show a lowering of general mortality and a corresponding increase of people living to an advanced age.

Philanthropy is favorable to natural selection itself. Selection, indeed, gives rise to what is superior, and this is the very reason why Nietzsche wishes to respect it. Now, how can we assist the production of what is naturally superior? Human society

has two ways. The first is to suppress, so far as possible, all factitious inequalities, those which come, not from the interior of the brain, but from the conditions of the physical and especially of the social environment. For instance, children originally robust, if brought up in an unhealthy atmosphere, run the risk of disease and death. These same children, if brought up in a social environment which condemns them to ignorance, wretchedness, abasing overwork, or to a no less abasing idleness or vagabondage, will become injurious to society, when they might have been made useful. Nietzsche thus goes counter to his own purpose in writing to maintain social privileges.

Philanthropy, in itself and by itself, in spite of mistakes it may have committed, is precisely one of the most useful things to society and to the social *élite*. And the proof which ought to appeal most to evolutionists is precisely the fact that philanthropy exists and grows with evolution itself. If it survives and makes an advance, it is by virtue precisely of this principle that it has its utility and its necessity, quite like justice itself, which is, with all respect to Nietzsche, one of the vital conditions of any society. And the underlying reason is easy to discover in the case of philanthropy. If humanity is interested in that men should *respect* each other, it is still more interested in having them *love* and help each other; all the more so because, without the feelings of sympathy and altruism, justice itself would be impossible. An absolutely self-centred man will not respect others any more than he will love them, if his interest is in formal opposition to theirs.

All of Nietzsche's objections to philanthropy are, therefore, only aimed at the blind and clumsy philanthropy which, wishing to do good, nevertheless does harm. In this case the remedy is not in "hardness of heart," but in enlightenment of the intelligence.

V.

A striking proof of the arbitrary and illogical quality in Nietzsche's ideas is that, from the same principle of intensive and expansive life, another philosopher, his predecessor, poet and inno-

vator like himself, had drawn conclusions diametrically opposed to his own. I mean the great French thinker Guyau, who died prematurely, and had so many ideas in common with Nietzsche. He chanced to be at the same time as the latter at Nice and Menton, writing works of which the conclusion was not "be cruel," but "be good." In Nietzsche's library was found a copy of Guyau's book, the "*Esquisse d'une morale sans obligation ni sanction*." This book was covered with marginal notes in Nietzsche's handwriting. He also speaks of the book in his "*Ecce homo*." He also owned the "*Irréligion de l'avenir*" by Guyau. In the "*Esquisse d'une morale sans obligation ni sanction*," of which the influence has been great upon contemporary philosophers, especially in France, we find an idea of life deeper than Nietzsche's and at the same time more in harmony with the true thought of evolutionists, or Darwinians. It may be interesting to set forth this corrective of Nietzsche's theories.

Guyau, as well as Nietzsche, thought the idea of life more fundamental than that of *force*; but he gave the true reason when he said that the notion of force is but "an extract and an abstract" of the idea of life. In the same way, the idea of life is, in Guyau's opinion, more fundamental than that of *motion*, inanimate outline of the animate, even than that of existence. Indeed, the only existence directly known to us is that of our life, which is conscious of itself, and from which we afterwards cut off one attribute or another to enable us to conceive other existences; for instance, the so-called material existences, which to Guyau are but a "diminished life," or a "life at its beginning." Ethics have as object the superior life; now the superiority of life to Guyau consisted itself in a *plenitude*, a *superabundance*, not a *limitation* and a *rule*. He did not, because of that, deny, as the libertarians do, and as Nietzsche did, that life must impose on itself limits and laws, but these ideas seemed to him derived, inferior to the notion of full existence. That is why he rose above the ideas of *obligation* and of *sanction*.

To Nietzsche, life is reducible to a body animated with a blind instinct for expansion, which he calls desire of power. Accord-

ing to Guyau, on the other hand, life essentially includes consciousness, intelligence, feeling, relationship with others, and not merely with one's self. It is more than an instinct, more than the calculation of utility, as with Bentham, more than selfishness and worship of the self, as with Nietzsche; more even than altruism, though altruism comes most closely to expressing its true nature and its true direction.

The fullness of life, in turn, instead of remaining vague as with Nietzsche, acquires with Guyau a definite meaning. It is at once "intensive" and "extensive," not only with regard to quantity, but also with regard to quality and direction. Intensity of life, according to Guyau, is the complete development of all our powers and qualities according to their true relationships, which are determined by science. Extension of life is the widening of our capacities, our ideas, our sentiments, our volitions, beyond the self; it is the largest possible union with others. "He alone lives fully who lives for many others."

Guyau has shown how, thanks to generation, the individual organism ceases to be isolated, how its centre of gravity is gradually displaced in the passage from asexual to sexual generation, which began a new phase for the world by producing a first grouping of organisms, germ of the family. The conclusion of his investigations into vital evolution is that life can be maintained only on condition of its spreading. "Life is fecundity, and *vice-versa*, fecundity is fullness of life; it is true existence." Guyau, unlike Nietzsche, adds that the rich life is the generous and loving one, not a life isolated in a proud and impenetrable self. "Life cannot be absolutely selfish, even if it should wish to be so. There is a certain generosity inseparable from existence without which one dies, one fades away within. But life must blossom: morality and disinterestedness, such is the flower of human life."

No less a poet than Nietzsche, but with a reason more firm and more robust, Guyau reminds us that charity has always been represented as a mother offering to her children her breast filled with milk; and, instead of seeing there, with Nietzsche, a

negation of life, what he sees, is its supreme affirmation. Most eloquently he says: "Charity is, indeed, but one with the richest fecundity; it is like a motherhood too full to limit itself to a family. The mother's breast needs eager mouths to drain it dry; the heart of the being who is really human, needs also to be kind and gentle to all; there is in the benefactor himself an inner call towards all those who are in suffering." It is thus by a scientific analysis of the conditions of life that Guyau ends by placing the highest life in the most generous one. He finds "even in the blindest cell a principle of expansion which makes the individual feel that he is not sufficient unto himself." Where Nietzsche thinks he sees a tendency to prey upon others, to crush others, he acknowledges a tendency towards union with others, towards forming but one with them to make a more living whole. "The richest life," he says, "is also the most inclined to be prodigal, to sacrifice itself in a certain degree, to give itself to others." What is, then, the real law of evolution by which life will always truly go beyond itself? Guyau makes answer, basing himself on biology as well as on psychology and sociology, "The most perfect organism is the most social one, and the ideal of individual life is life in common." Whence this principle laid down by Guyau, which is the refutation of Nietzsche, "The deepest intensity of life has as necessary correlative the widest expansion."

The utilitarians had, like the socialists of to-day, sought in social arrangements a masterpiece of mechanism capable of producing a posterior and artificial harmony among naturally discordant egoisms. Guyau shows that the problem was wrongly posed, that there is a certain preëstablished harmony between the happiness of A and the happiness of B, that the self, supposed to be closed, is already open, already in a free and frank union with another, and that it will open still more. "A joy is the deeper here below the wider it is; a day will come, I think, when no one will enjoy or suffer alone; when all will be mingled, pleasures, pains, and thoughts, when an ever-enduring echo will sing in the soul."¹

(1) Guyau, *Vers d'un philosophe; la Solidarité*.

Guyau has anticipated Nietzsche's hypothesis; he has asked himself if the richness of our various powers can be contented by contest as well as by harmony with others; by the destruction of other persons as much as by their improvement. "But," he argues, "in the first place, the will which struggles, sees its power diminished by the very resistance which it provokes. Other people do not let themselves be so easily crushed. The will which tries to impose itself necessarily encounters the opposition of another." Consequently there is more true power in being admired, esteemed, loved, than in being feared. Guyau adds a remark which is a radical refutation of Nietzsche's individualism. Even if the will triumphs over resistance, he argues, it cannot triumph alone; "it must rely upon allies, constitute thus a *social group*, and impose upon itself, in relation to this friendly group, the very servitudes of which it has wished to free itself with regard to other men, its natural allies." The proof, indeed, lies in the fact that Nietzsche, instead of being satisfied with the isolation of the self, imagines a group of allied and friendly "masters," between whom he reestablishes bonds and duties as close as those of moralists. He confines himself to displacing and diminishing ethics, instead of suppressing them, as he had intended. He merely brings us back to the condition of affairs in the old aristocracies.

Guyau's opinion of Napoleon is more accurate than that of Nietzsche, who has fallen a victim to the romantic features of Napoleon's career. "Certain characters," says Guyau, "have above all a richness of will; as, for instance, Napoleon I. They turn the world topsy-turvy in order to stamp their mark upon it; they wish to substitute their will for the will of others, but they are poor in feeling, with an intellect incapable of *creating* in the broader meaning of the word, an intellect which is of no value in itself, which does not think for the sake of thought, and which they turn into the passive instrument of their ambition."¹ Thus, their power ends in impotence. Guyau goes on to argue

(1) *Esquisse d'une morale*, p. 100.

that not only does every contest end in an "external limitation of the will," but, besides, "it modifies this internally." Indeed, "the violent man stifles in himself all the sympathetic and intellectual part of his being; that is to say, what is the most complex and the highest, from the point of view of evolution." If "hardness" is anything else than firmness in justice and love itself, it is but brutality. Now Guyau says, "By being brutal to others, the violent man becomes more or less brutal himself." Thus violence, "which seemed a victorious expansion of inner power," ends by being "a restriction." "To set as object before one's will the degradation of another is to give it an insufficient aim and to impoverish one's self." But this is not all, and Guyau shows that the ultimate stage of this supposed expansion of life (in which Nietzsche finds the rising flow of exuberant health) involves, on the contrary, decline, disorganization, disequilibrium of life, one may even say, disease and insanity of the will. "By a last and deeper disorganization, the will reaches a complete lack of equilibrium through use of violent methods, when it has refused to let obstacles face it, as in the case of despots. Any impulse on its part thus becomes irresistible. The most contradictory tendencies succeed each other, resulting in complete ataxia. The despot is again a child, he yields to contradictory caprices, and his objective omnipotence ends in reviving a true subjective impotence."¹ Thus Guyau, after a profoundly psychological and accurately scientific analysis, had already uttered the condemnation of Nietzsche's whole system. The so-called moral system of the "masters" is a moral system of "children," when it is not one of "madmen."

Guyau was no less free than Nietzsche from prejudices of a moral and religious character. Before Nietzsche, he had rejected all that is arbitrary in Kant's purely formal imperative. Before Nietzsche, he had maintained that *positive* morality (which is, moreover, according to him, only the first part of morality) is

(1) *Education et hérédité*, p. 53. *Esquisse d'une morale sans obligation ni sanction*, p. 102.

"without obligation or sanction." The true imperative is self-imposed, for the imperative of others, even of a god, is valueless unless it conforms to our own. On the other hand, you cannot give commands to yourself in the name of a command, but in the name of some principle superior to any command, which consequently rises above the idea of discipline, of law, of rule. The deepest moral life is, therefore, not only "*autonomia*," but, in a sense which we must be capable of understanding, "*anomia*." If morality is not properly *in itself* imperative, it is because it is *more than imperative*. It overrides the idea of *law*; it is not *beyond good or evil*, as Nietzsche would say, but *beyond law*, a quite different matter.

In the same way, to Guyau, the real "sanction," properly so-called, or expiation, is not really *moral*, and the only legitimate sanction is social protection. When Nietzsche wrote the "Genealogy of Morality," he had read Guyau's book, "Morality without Obligation or Sanction"; he had read the profound analysis by which Guyau reduces sanction to expiation, expiation to a mystic compensation, a sort of balancing of faults and punishments. But Nietzsche could not extract, as Guyau did, from the "notion of vengeance, punishment and expiation, an ideal of higher morality for which evil is never a true compensation for good." Nietzsche, as we have seen, thinks he sees in "cruelty" a real unfolding of life, a real "master's" passion, which a false morality would later have made a low rather than a noble feeling. "I distinctly affirm," says Nietzsche, "that in the days when humanity was not ashamed of its cruelty, life passed upon earth with more serenity than in our age of pessimism." And Nietzsche cannot find sarcasm enough for the "sickly weakness and moralism which end by making the animal *man* blush for his instincts," as, for instance, cruelty!

How different is Guyau's attitude! Far from condemning, with Nietzsche, pardon and pity as virtues for slaves, he wrote: "I have two hands, the one with which to clasp the hand of those with whom I walk in life, the other to lift up those who fall. To the latter, indeed, I may offer both hands together."

By virtue of his principles, Guyau, like Nietzsche, though for other reasons, was on his guard against doctrinaires, sectarians, "preachers," who think that all truth is upon their lips, "directors of the conscience," who try to impose their direction in place of our autonomy. This is why he assigned true religion to "heterodoxy," to the personal or collective belief, which concerns itself with no other authority except that of truth. He was as hostile as Nietzsche to any false authority.

The anarchists and socialists, it is true, have tried to win over to themselves Guyau's doctrine, as being at once the most liberal and *autonomous* in principle, the most social and *mutual* in its application. But we wrong a great thought in trying to imprison it in narrow and exclusive systems, whose aims are different and even contradictory. Because the individual conscience must, as conscience, have its *autonomia* and even, in a deeper sense than that of Nietzsche, its *anomia*, because it must *make* its own law, be its own law; therefore, the anarchists conclude that social man must be *without* law. Guyau, on the contrary, considers law as the necessary expression of the conditions of social life, and sanction as the defensive or preventive maintenance of these conditions against those who disregard them in their actions. He thus gives its due share to the idea of *socialness*, of which the excessive individualism of Nietzsche fails to appreciate the importance, and of which Evolution, Darwinism, and the Positivism of Comte had already shown the scientific bearing.

It is not only a generous instinct which held back Guyau on the declivity leading to the excesses of social Darwinism, the extravagances of Nietzscheism, or other analogous systems; it was his reason, his depth of thought, which made him see in life, well understood, a principle of union and of peace with others, not one of hostility and war; a source of generosity and ever-increasing altruism, of solidarity and sociability, not of isolation in the self, not of proud and tyrannical unsociability. It was by demonstration that he established the "increasing fusion of feelings, intelligences, and wills," which is manifested in direct ratio to the intensity and extension of life in superior beings. Though

he did not say, with the ancients, "Follow nature," neither did he say, "Overthrow nature." What he said was, "Truly fathom nature, and from its expansion you will see a guidance emerge; for, to imitate Goethe's thought, the thought which conceives a better nature is itself part of nature." The "luxuriant and tropical life," of which Nietzsche sings, far from being the intensive life of Guyau is but its caricature. Nietzsche thinks himself progressive; he is really behind the times. His ideas and his sentiments are precisely the essential characteristics which Guyau rightly attributes to decadents: unsociability and isolation.¹

VI.

Neither Guyau, moreover, nor Nietzsche has, to my mind, sufficiently fathomed the idea itself of vitality or of life upon which both have based their theory of morals. The idea of life is ambiguous, because it belongs in reality to two distinct spheres, that of the external world and that of consciousness. From the physical point of view, life is but a mechanism, more complicated than all others in that it renews itself and becomes the centre of a sort of Cartesian vortex; but it is still a mechanism, as Descartes himself had understood it. And so, in this direction, a moral doctrine cannot be established. All that can be said, is that, even under its mechanical aspect, life is essentially, as has been pointed out, a construction always accompanied by the destruction which Nietzsche considered almost alone. The problem itself of life, physically considered, is the establishment of an equilibrium between construction and destruction to the advantage of the former. But this is only the material side of life. To be accurate, what constitutes life itself, is what is within and not without; it is the inner activity, and the more or less confused sensibility which accompanies this. In other words, it is the psychological substratum of life which is of importance, and which can alone enlighten us as to true moral "values." Now, from the psychological point of

(1) *L'art au point de vue sociologique*, Conclusion.

view, the doctrine of Nietzsche about life seems to be neither new nor true. It is but the old theory of the selfish will, of essential gravitation to self; La Rochefoucauld and Helvetius, moreover, were among the French masters of Nietzsche. But contemporary psychology has refuted the purely selfish theory, and has shown that altruism is no less essential to life, no less fundamental and primordial. The Darwinian mechanism of the selection of the best fitted to the environment expresses a law of animal nature, which persists in human societies, but this is only one of the laws in action in the real world. The *psychological* laws are quite different from this; nor can *sociological* laws be reduced to the selection of the strongest or to a simple struggle for power.

From all that has gone before, it is evident that the selfish morality of Nietzsche is false and contradicted by science; the altruistic morality of Guyau is in conformity with the data of science; it is true from its own point of view and in its own sphere, which is that of nature and of life, well understood. Guyau was, moreover, the first to recognize and to point out the limits of purely scientific and positivist morality. He thought it necessary to add cosmological speculations and philosophical beliefs, which he imagined (perhaps wrongly) to be too individual and too hypothetical. However it may be, Nietzsche's interpretation of Darwinism as a morality of ogres and of bugbears is an incomplete, one-sided, and false interpretation. The same applies to the theory of Nietzsche which reduces everything to an insatiable greed for "power" without telling us in what this power consists, how it is exercised, and upon what. Nietzsche has constructed a whole system of metaphysics and of poetry upon a foundation which is but a fragment of truth. Happy confidence in one's self and in one's theories! The same man who has cast doubt upon everything, scoffed at everything with his heavy jokes and his Teutonic humor, ends by intoning in a loud voice, and without the least hesitation, a *credo* to the right of the "strongest," to the "Overman," to the old theory of the "eternal return," or of the "great year,"—and this in an age when

not a single theory, even of science, escapes criticism, restrictions, limitations, questions of every kind. In truth, faith does not alone transport mountains, it smooths out the most flagrant logical contradictions or mistakes of argument and observation !

Far from being the foundation of "true scientific ethics," Nietzsche's doctrine has, on the contrary, been proved, with sufficient clearness, I think, to be a negation of the best established laws of biology or of sociology. "Zarathustra" is a wonderful poem from the literary point of view, but valueless from the point of view of science. The unbridled individualism of Nietzsche is in flagrant contradiction to the idea of solidarity, which is daily becoming more important to biologists and sociologists. The German thinker has seen only one of the two great laws of nature, the law of division and of opposition ; he has not seen the other, the law of union and of harmony. The notions of opposition and of union are both essential to the idea itself of concrete and finite existence ; but these two ideas must not be put on the same plane, and it is, as against the fancies of Nietzsche, union which is the superior and final law of existence itself. Inasmuch as the isolated and windowless monad cannot exist, the supposed atom is composed of parts, which doubtless differ, and by that fact are, in a certain measure, opposed to each other, but which are none the less, thanks to final synthesis, *interdependent* parts. Physiologically, life is a series of interdependent movements, presupposing interdependent organs, themselves reducible to interdependent cells, to a *society* of cells. From all this it results that the idea of life is bound up with the idea of association. Now, any harmony of associated beings, if only it is conscious and voluntary, becomes morality itself. We have, therefore, a right to conclude that the notions of *life*, or *society*, and of *morality* cover a deep identity. The contest which charms Nietzsche as the greatest of blessings, is but a necessary evil proceeding from the limitations of life, the obstacles to life, not from the essence itself of *living*. From every essential point of view, the idea of life is precisely the one of concord and of harmony.

Nietzsche, in one of the numerous projects which passed through his diseased brain, wished to devote ten years of his life to the study of natural sciences to corroborate his system. Why did he not do so? At the end of a very few months of serious study, he would have seen the system give way before facts. But he remained in the state of ignorance, the ignorance which makes prophets, seers,—and even poets.



THE DECORATIVE SCULPTURE OF AUGUSTE RODIN

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AUGUSTE RODIN is, at the present time, the greatest sculptor in France, and the only one who exerts an influence upon all modern artists. He commenced by exhibiting admirable statues, in which were revealed an absolute knowledge of the secrets of his art. Then, having become famous, for the last five years he has modified his technique, and created works which have excited discussions, and even mockery; at the age that a celebrated artist usually reaps the fruits of his career, he has puzzled the world, and would seem to have begun his life all over again. This evolution has been treated by the critics, on the whole, in the most illogical fashion. Some have exclaimed against it as a mystification, without respect for a past so glorious; others have declared that the artist was the victim of false ideas. Around his statue of Balzac, that caused so much dissension, the most contradictory opinions were advanced. Auguste Rodin was defended by all the independent spirits and innovators. The very violence of the discussion proved that we were face to face with a revolution in sculpture. We shall try here to explain exactly the ideas of Rodin, their affiliation, their results, their future, and the place that must be assigned to them in the history of French art.

I.

Auguste Rodin has worked for forty-five years without interruption. He was very poor. He began as workman and rough-modeler in the studio of a mediocre sculptor; later, he worked

upon the pediment of the Brussels Exchange, then settled down, and began to produce for himself. The works which he sent to the Salons were for a long time unnoticed and hardly remarked, save by a few amateurs. A superb mask, the "Man with the Broken Nose," which resembles an antique, was the first to spread the name of Rodin, until an incident occurred which brought him before the public. The artist received the order for a figure for the garden of the Luxembourg. He created the statue called the "Brazen Age," which may be seen there to-day. When he exhibited it at the Salon, certain sculptors protested that the figure must certainly have been a reproduction from nature, that it was impossible to attain such surety in modeling, and in the anatomical study of forms. Rodin, in a letter communicated to the press, set forth in detail how he went to work, and showed that the accusation was false. The affair brought him great honor. From this moment, he was faithfully followed by a whole group of critics and artists, and by the younger generation, while the academic sculptors and officials looked upon him with jealousy as their most redoubtable rival. Soon the "St. John the Baptist" appeared, an admirable and vigorous bronze; then, a whole series of groups in marble. Finally, the "Monument raised to the Memory of the Six Burghers of Calais" was the crowning point of the artist's celebrity. But from this time on, we find something unusual, bizarre, and difficult in his conception of beauty. Emerson has written somewhere, "When my genius calls me, I shun the world; I should like to shut my door by writing 'whims' above it. I know that what inspires me is better than a whim, but we cannot spend our lives in explanations." And Mr. James Whistler has also written, "The artist, at every moment of his life that he is venturing, is a monument of solitude that leads to sadness." These quotations from two illustrious Americans come to me at will as applicable to Rodin. He, too, talks little, he, too, is a "monument of solitude." He is the personification of a certain silent strength. He works with constant activity, not feverishly, but by a natural development of the organism, and he clings with invincible

tenacity to the system of ideas which he has formed for himself. His work does the explaining instead of his doing it. He shows the work, and lets the visitors do the talking. It is in his works that we shall always find the surest information as to the genius which creates them.

Rodin has an extremely passionate nature. Before everything, it is instinctive. He loves life in its every form, and considers life as infinitely greater than all theories. For him, plastic art can prosper only by constant and minute observation of nature; not servile copying, but the analytical and profound study of nature's laws. He believes that all æsthetic conceptions, all systems, all preconized formulas for attaining beauty, are at every minute contradicted by life, and that there is only one exact idea upon which we may agree, and there stop disputing as to what is beautiful and what is ugly. This idea is the character itself of each object and of each being; the character, which should in art be always clearly in evidence. For Rodin, there are no longer any noble or vulgar *subjects*; there is no place for them in his conception of things. A plastic art may be inspired by a thought; it must not *represent* an anecdote. It must draw out that which touches upon the great sentiments of humanity in every subject, but it must not interpret these for the subjects themselves. Imbued with these ideas, Rodin sculptures groups which represent nothing, which are simply human figures conveying by the nude, without accessories and without vestment, certain emotions and thoughts. He has created a series of extraordinary little marbles, in a proportion which is peculiar to him. The eighteenth century alone, with Clodion and Falconet in France, used this form of sculpture, which includes entire figures within a dimension of a metre at the most; yet this was only for light subjects. But Rodin has used this form to express even the strongest emotions. There are female fauns, lovers that are interlaced, a young man with arms thrown violently about the neck of a chimera, Psyche discovering Love, a Danaïd, an old woman, in a squatting posture, who is gazing with despair upon her hideous body, a miser and a prostitute dying together,

a man kneeling as he presses his mistress to his heart, a *baigneuse* listening to the counsel of the two nymphs who eddy about her on the waves, and a man in despair, who is raising his arms to the skies; such are always the subjects of Rodin. They are thoughts, sensations, and dreams, a veritable album of stone, which may be compared with a collection of the songs or of the lyric poems of a Schumann or a Heine. We trace there the development of an imagination and a soul. These marbles are all of the greatest beauty, and have a strange potency of expression. The forms start out from the marble, which often still half envelops them, like marvelous flowers; their position, their profiles, are entirely new. Indeed, Rodin always endeavors to work in the sense of the most natural patterns of the block from which he draws forth his figures. He sees there already the direction of the whole, instead of being troubled by it, and it is really the block itself which begins to grow distinct, to live, and to reveal the beings which it concealed within its sides. All these personages are not only sculptured with a masterly knowledge of the nude, but they have this characteristic, also, that their arrangement, their relations, are like nothing that we knew before. The solicitude for ardent expression overmasters every æsthetic consideration. These figures have an almost incredible energy in their gestures. They palpitate, they suffer, or tremble with love. Their looks are primitive, enraptured or despairing, or stamped with a sorrowful exaltation. The women are slender, arching, and very supple, with breasts almost like those of young men, and with long, graceful forms. The men do not exhibit that ostentation of muscle in which the ordinary sculptor reveals his craft. They are preëminently nervous. They are, indeed, modern of tone, with unrest in their hearts, men of the decadence, incapable of not feverishly spiritualizing the simplest feelings, the most material sensations. One feels them to be literally impregnated with all the wild drunkenness of mingled ideality and nervousness. Each of these marbles is a song, a grand and sorrowful poem on the aspirations and tortures of an intelligent and disturbed humanity.

This search especially for vitality, for natural gesture, and a profile freed from all traces of immobility, determined by the feeling itself, and not constrained to a certain prescribed ideal of beauty,—this quest was to lead Rodin to make an innovation in the sculptural conception of a monument. The “Burghers of Calais” gave him his opportunity.

There are six figures, larger than nature by a third, and which resemble a bas-relief suddenly endowed with life and detaching itself from its wall. They are placed on a low socle, in such a way as to be almost in the midst of the spectators. These men are, in keeping with historical conditions, clad only in their shirts and with a cord around their neck. A little in advance of four from amongst them stands Eustache de Saint-Pierre, their leader, and another, who is turned slightly back towards the city. The contour of the whole may not be compared with any other known monument. It is a group that has been seized and petrified in the very act of life; it is a drama in stone, a heart-rending drama, whose meaning may be read upon the faces of these human masks in the moment of sacrifice, and who are on their way to death. There is nothing theatrical, no excessive gesture. These men are marching, with heads bent, without useless bravado, but very resolutely, towards martyrdom, and are seeking an inner strength in the depths of their grave souls. Already, along with the admirable execution of the faces and hands, appear great simplifications in the manner of treating the draperies, in very broad designs, without vain imitation of folds and details. The models are very succinct, wholly with an eye to a great statue that is made to be seen on a background of sky. This monument marks the passage between Rodin's first and second manner.

Invited to compose the monument of Victor Hugo (to be placed in the Pantheon), the artist made here for the first time a complete revelation of his new ideas. When this work appeared, it was the occasion of great astonishment, and jealous critics began to appear. Hugo, in demi-nude, like a god, his head bent, resting with elbow upon a rock, is listening to the voice of one of the muses, while a kind of winged victory like a gigantic bird hovers

above his brow, and a wave breaks in foam at his feet. The whole is full of a strange sublimity. We observe there an even more strongly marked simplification of the forms than in the "Burghers of Calais." The muse, which the artist calls "The Inner Voice," is a kind of rock, modeled only in part, of which only the body is human. The rest is truly born of earth; we distinguish there only an outline of human forms, and the nude of Hugo is unreal. Although very powerful and very true in the large patterns, it is as though transfigured in its anatomy. It is not a man, it is the outer shell of a man, just enough for the soul to illuminate it. The head is splendid and august. Rodin made it after a bust which he had formerly modeled. I must tell the story of this bust, since it will enlighten the reader upon the genius of the great sculptor. Hugo's consent was not gained for this reproduction of himself. David d'Angers had already made of him a bust which he declared was so perfect that he would allow no one to succeed David in this office. Rodin entreated in vain. Hugo permitted him to come to see him, and invited him to his table; Rodin placed a stool in the ante-chamber, with clay and tools. At the table, in the midst of the conversation, he made sketches upon little folds of cigarette paper, then ran into the ante-chamber, and noted down his impressions with a boasting-chisel. Thus the bust was made, one of the most beautiful of modern French art, the companion of those of Rochefort, Puvis de Chavannes, Dalou, and Jean Paul Laurens, which will remain imperishable examples of the mastership of Rodin.

Finally, the famous "Balzac" caused the scandal that every one knows. It frightened and disconcerted the public. Now, it is winning more admirers every day. It is an architectural work. Rodin explains that in his opinion the statue of a man celebrated for his heart and mind should not be a representation of his body, but a sort of construction whose lines should express the soul of the man. One must, of course, have an exact representation of the face in order to recognize the subject, but to copy his hands and his clothes is puerile. It is illogical, he says, to give the

feet and the dress the same value as the head, which is alone important, unless you want to make a photograph and not a work of homage. The "Balzac" is a kind of dolmen or granitic menhir, a stone arched in a movement of disdainful pride, which expresses the whole character of Balzac, and reproduces exactly the leonine head, with the enormous smile, the eyes deep sunk and sombre, the shaggy hair, and neck of a bull. Before this work, we feel all that inspired the work of the great novelist; we feel that one genius has been understood by another. It is, indeed, a monument; it is not a "monsieur" reproduced in stone. But such a conception could not be understood. It was, however, instinctively understood by the crowd, and not at all by the professional sculptors; and by an irony of fate, the same men, who fifteen years ago accused Rodin, on account of the "Brazen Age," of reproducing from nature, so surprising was the knowledge that his statue exhibited, declared before the "Balzac," that the sculptor did not know his business thoroughly.

Rodin is never moved by the opinions of others, whether of praise or otherwise. He works without ever troubling himself as to what other people think of his productions. For some years, he has been seeking a new method for sculpture. The "Balzac" gives an example of this; he has shown it also in his busts, and even in his portraits. I will try to give, in outline, his ideas and their application.¹

II.

Sculpture is a static art. Why should it not be as dynamic as music or poetry? It has its dynamism, which is movement. That is its bond with life, its means of affecting people. If the

(1) I give here, in outline, the ideas of Auguste Rodin after the conversations with which he has honored me, and I shall try to keep their original, simple form. It is what I have already tried to do in a lecture given at the exhibition of the works of the great artist in the special pavilion which contained them during the recent Exposition. I think that the American public will be satisfied if I substitute for my personal commentary the more vital opinion of the man himself of whom I have been speaking.

Greeks and the builders of the Gothic cathedrals have made admirable works, full of nobility and mysticism, the first by obeying an ideal of physical beauty, the others by obeying the Christian ascetic and psychic ideal, why can we not understand that it is vain to begin again with these works, and that it would be far better to endeavor to reach the modern ideal, that of passion and restless nervousness, that of the struggle between the soul and the body? But movement is precisely that element of sculpture which presents itself naturally to the mind in order to create the third age of this art. It is with this element that we must ally ourselves, instead of imitating the hierarchic art of the Middle Ages, or of finding a sufficient example of beauty in the perfect human body, with which the Greeks were satisfied. What, then, is the technical method of intensifying movement and life to the utmost? First of all, the seeking of large profiles, large patterns of a figure. As a rule, sculptors work upon their clay on one side at a time, and have it *directly facing* them. It is better to work by turning constantly around and making upon the block itself successive designs of all the preliminary conceptions, modulating them by a simultaneous design of all the silhouettes, in order to obtain particularly a design of movement in the carriage, without preoccupying one's self about details. If one desires to pass from small sculpture to large decorative sculpture, it is indispensable to sacrifice everything to the general contour and to the values, that is, to everything which remains visible in full light. What is this thing called value? We shall explain it by a figure of speech. Let the reader think of what would be seen of a man standing in a false light, upright against the sky at twilight. You would see a very precise profile, filled in with sombre coloring and indistinct details. The relation of this sombre color with the brightness of the heavens forms the *value*, that is, the impression made upon the retina in such a manner as to give the mind the idea of the materiality of the body. Whether the body be black or white, clothed or naked, the idea of its value remains independent of its coloring, and all color exists merely as subordinate to value. It

is, then, a principle common to both painting and sculpture, and you will find it in every art; it is called tonality in music, rhythm in poetry, and syntax in prose; it is the element of proportion and of synthesis.

Rodin, of a synthetic mind, accustomed to deep thinking, seeking the general laws of life contemplatively, ceaselessly, and in every detail, has come to build all his personal art upon an idea common and superior to all arts, which he looks upon, not as distinct domains, but as successive phases of the same logical system. He has to think that by systematically exaggerating the modeling of certain parts, those that express the principal movement, the person represented will gain in vitality. It is necessary, naturally, to proceed with infinite precaution. Rodin's reasoning terminates in the *deformation of the truth, commonly admitted as such, with a view to the strengthening of the expression*, that is, in reality, *a more profound penetration of the truth*, for truth is that which is the most expressive. But distorting a line in order to accentuate an essential characteristic is caricature. Consequently, it is necessary to enlarge and exaggerate certain parts, not as isolated, but in a constant relation of proportions with the other parts. But if this relation has been exactly proportional throughout, you have merely obtained an enlargement of the statue. The relation between the exaggerated parts and the others must, then, be *arbitrary*, and subordinate to the total silhouette of the work. It is a question,—and here is the true explanation that Rodin proposed,—of a philosophical *amplification* in the sense of movement, and a question, consequently, of the soul of the person. And by movement we not only understand gesture, but manner of being; a motionless figure has its movement, there is even action in the fact of its repose. “But how is this?” someone will ask. Admit arbitrary distortion of proportions in a figure of metal or plaster, is that not entering the most dangerous of all roads? is that not heading straight towards formlessness and incomprehensibility? No; it is the same principle of ancient sculpture, for which amplification of forms was the natural condition of decorative art. It is the principle which

produced the Colossi of Serapeum, the Memnon, the Lion Gate at Mycenae, the Bulls of Khorsabad, the Pallas of Ægina, the wonderful Greek torsos, the people of the Gothic cathedrals, and certain of the works of Donatello. It was the Renaissance, the seventeenth and eighteenth centuries, that sought reality in the exactness of the reproduction, and have approached sculpture to the inferior arts, those of imitation.

Rodin, filled with these ideas, began to work very timidly upon the pieces already executed in very faithful proportion with the model, by adding clay to a relief, accentuating a hollowness, insisting upon the characteristic curve of a muscle or of a bone, by endeavoring to distort the relations of two lines. Only demonstration at the place, in his studio, can make one understand how delicate and slow these attempts were, and how they lasted through many years. Rodin observed that the mezzo-tints became softer and more gentle, that the high-lights were not so dryly brilliant. The profile did not stand out so harshly in the atmosphere. A kind of vibration in the air was created around the contours. It was the copious light of a painting; a recoil was created by the magic of the amplifications. The work assumed a collective tonality, a peculiar coloring, because the calculated enlargement of the patterns led to more prolonged contacts with the light. The reflection of the light was accomplished with more facility upon curved surfaces. It is well understood that such written explanations remain obscure, and would only become clear before the plaster itself. I give these, however, in order to try to make the reader understand in what the innovation of Rodin consists, or rather in what respect he has returned to the principles of the ancients, who applied the laws of bas-relief to detached figures, and who were ignorant of sculpture destined to be seen (illogically) in enclosed spaces. A Rodin may only be appreciated fully in the open air. There only is the beauty of his carefully wrought amplifications explained. There his aim is clearly shown, which I am forced to formulate here in an abstract manner: the prudent and progressive abandonment of immediate reality to the profit of what philosophers call *secondary* reality, and

what we call in art *expressional reality*. Rodin's work has formed an abyss between the representation of a form and its characteristic synthesis. In this regard, it is powerfully spiritualistic, in a form of art which seemed to make literal reproduction an absolute condition of its own existence, and in which popular opinion is accustomed to seek a realistic portrayal, because plaster and bronze, the material around which one may revolve, seem to forbid sculpture the laws of poetry.

Rodin infuses into his personal art all the abstract resources of music and literature. At the bottom of art he seeks the elementary principles of harmony and of sensibility. This is allowed him because he is a sculptor who is a wonderful master of form. His drawings are very curious. They express his manner of thinking in a striking fashion. They are designs apparently reduced to a childish simplicity, with contours encircled with a stroke of the pen and washed in with a single color. They indicate a single gesture, a value, an expression. He makes them before the model, very rapidly, seeking solely to give to the gesture which he has studied the greatest intensity by making the whole body contribute to it. These designs are in some sort drawings of movements. In this respect they are disconcerting to people who are not free from the idea that a drawing, even in the condition of a sketch, is a careful reproduction of the appearance of a person, of the truth which imposes itself upon the eye, and not that which is perceived by the soul.

For twenty years, Rodin has been working upon a monument which has been called the "Gate of Hell." In reality, it is simply a scheme for the portal of a museum of the Decorative Arts, for which the artist received an order, and which was never executed, because, at the present time, they are still disputing concerning the installation of this museum. Rodin contracted the habit of grouping upon the scheme of the folding doors, of a very simple rectangular form, all the figures which presented themselves to his inspiration. At the time, he was haunted by Dante, and upon the keystone of the arch he placed the face of the "Thinker" (one of the most sublime that he has created), then,

above the door-case, Paolo and Francesca, embracing while they die together. Upon the sides he massed figures which are never more than a metre high, and are almost always very small, and which are the incarnation of all the human passions and sorrows. It is thus that the abandoned scheme of the doorway has, little by little, become the "Gate of Hell." There, Rodin has gathered a whole world of marvelous figures, a veritable multitude. Every time that a sorrowful or passionate inspiration came to him, he modeled his sketch, and added it to the door. There are treasures there in gestures and expressions, a vast poem of the nude. Every form of damnation is represented there with powerful poignancy. It is in some measure a repertory of forms from which he may ceaselessly borrow. Sometimes he takes off a figure, and isolates while making it perfect; sometimes he entirely remodels one, destining it forthwith for a separate group. But the "Gate of Hell" is not a decorative work in the exact meaning of the term. On the contrary, works like the "Victor Hugo" and the "Balzac" are intended in this way. Rodin has also another vast scheme, but one which is not near being realized by the French Republic. It is a monumental column, surrounded by a covered stairway, winding in a spiral to the top, so that one may study the details at ease. This column, covered entirely with bas-reliefs and somewhat resembling the Tower of Pisa, is dedicated to the glory of Labor, and the bas-reliefs represent figures of every kind of intellectual and material toil. From the summit, two figures of genii bless the people.

These two figures are already executed in very small proportion. They are among the most beautiful of Rodin's works, with a lightness and rare ideality in the waving of their vast, vibrating wings. But it appears improbable that the Republic will make possible the realization of his gigantic scheme.

III.

It is difficult to enumerate Rodin's busts and isolated figures. His collective efforts are very considerable. He works very rapidly, and rests from his sculpture only by drawing. He has

signed several very beautiful etchings and water-colors, notably the studies of the face of Henry Becque. He has illustrated with admirable pen-sketches a copy of the "Fleurs du Mal" by Charles Baudelaire, for the great Parisian collector Gallimard. All through his work is found the same passion for movement, the same masterly breadth in the structure of the designs, the same wild poetry, both sensual and spiritual, and the same animal and primitive grace, wholly opposed to the studied grace that is so often sought after in the statues of nude women. Rodin reaches the highest pantheistic philosophy by a kind of superior simplicity. He shows in the human being the original forms of the race, and, instead of seeking to create beauty by an artificial refining of the forms that disguise the existence of the animal in man, he reconciles man with earth, arches his young torsos with the movements of poplars, and far from erecting upon pedestals cold effigies that are strangers to our emotions, he gives us sorrowful brothers, in whom we may recognize ourselves. He is human, profoundly human, and more than "human," in the sense that Nietzsche understood this expression. Each of his figures shows an incredible concentration of his observations of life, and, at the same time, psychological and poetic purposes. His entire exhibition, in the pavilion which contained this during the recent Exposition, afforded a unique impression of splendor, truly the feeling of a world recreated by one man. Every passion was incarnate there; you wandered through his galleries as you would through the works of a great philosopher who has touched upon all the questions of thought. You did not experience for a moment that confusing sensation which is so apt to seize the visitor at an exposition, that of the disorderly diversity of subjects. It was, indeed, the work of a single mind, perfectly coherent, but nothing was lacking and nothing was repeated. One of Rodin's qualities is truly a powerful logical sense. He has a style of his own. He develops with a slow sureness the successive forms of his vision of life, and each of his creations completes the one preceding. He has written the poem of sad and passionate humanity with an inexorable directness, without caprice, and without sudden changings in his ideal.

The place that he occupies in French art is considerable. At present, it may be said without exaggeration that no French sculptor has ever been greater from the standpoint of knowledge, style, and expression. Puget, Houdon, Rude, and Carpeaux have been geniuses who entered with a determining power into art by the new movements which they introduced, appearing like complete and unexpected organisms. Rodin, too, is a genius, and he has created his own personal domain. He has mingled in his art literary nervousness with a strange audacity, but with such a plastic power, such admirable mastery, that truly we may never accuse him of having sacrificed the realization to the purpose. He is a marvelous workman. He has the characteristics of genius; you can never mistake a Rodin for any other work. He has known how to find absolutely personal principles in his interpretation of the nude. He is faithful to the truth of nature, although he transforms it in the interpretation. As to the endeavor he has been making, for some years, it may be summed up thus: he steers resolutely against the current which has governed all academic sculpture since the Renaissance. He goes back to the Middle Ages and the ancients. By the philosophical amplification of his designs, he unites Greek sculpture and the decorative art of Egypt and Assyria. He protests against imitation in art, and reacts vigorously against skill at the expense of feeling. He approaches decorative sculpture to architecture in accordance with a nature-inspired æsthetics. He considers the forms of life as the elements of the soul's expression, and denies that the *bit* of sculpture ought to be the artist's single aim. His ideas exasperate the official artists. The ill-omened teaching of the school of Rome has done much harm in France. At the present time, a vigorous reaction has set in against it, a reaction begun by the great impressionist painters, Manet, Degas, Renoir, and Claude Monet, and which is being brilliantly carried on to-day among all the younger generation. Rodin is in sculpture the soul of this reaction. He is honored, and his footsteps are followed by a certain number of sculptors, who have a great future before them. I must name

them here, because they are truly the successors of the master, and already show in their work the development of his ideas. These are Mlle. Camille Claudel, who shows an energetic and very inventive nature; Alexandre Charpentier, an artist of varying tastes, a lithographer, and an industrial artist who realizes beautiful furniture, minor articles, and embossings, along with vigorous and elegant statues; Pierre Roche, who works upon all lines and with all materials, bronze, sandstone, and enamel, and who passes from a monumental fountain to the design of a lamp or a mantelpiece with perfect ease; Emile Bourdelle, a creator of soft and delicate figures; Emile Desbois, expressive and tragic, and Rupert Carabin, a delicate ornamentalist. Many others are influenced by Rodin in their modeling and in their movement. From year to year, their number augments, and their admiration avenges all the insults offered to the master. There is, indeed, a secret and incessant struggle to take away Rodin's orders or to throw difficulties in his pathway. His glory is all his own; he passes now for the greatest sculptor in France, in spite of the fact that he is far from being accepted as such without considerable rebellion. The Academy detests him, and the government is afraid of him. His stormy genius will never be of those who win all votes. And it is not necessary to add that he will never do anything to draw them. Rodin is solitary; he is a man for whom there is nothing serious apart from his work. For twenty years, every day, he has left his studio, where he comes each morning at seven o'clock, to go and dine at a modest café; he then returns, and shuts himself up until night. His studio is that of a poor beginner. It is furnished solely with stools and a few straw-bottomed chairs. The walls are bare. That is where Rodin works, a simple man, with his slight but very vigorous stature, his enormous head, with aquiline nose, grey eyes, both ironical and tender, and large grey beard. He has some very faithful friends, and sees only them. He speaks very little, is timid and reserved, has a horror of crowds and of people, of conversations and of the desultory phases of a more general society. Few men give more the impression of a

psychic force that lives in itself, of a creative organism that is indifferent to daily events. He has known hours of greatest poverty, and is no more troubled by them than by the hours of success and glory. He is a very noble character.

Rodin is certainly one of the great men of France, and one of those who exercise a moral influence besides an æsthetic one. He has the supreme quality which creates influence, that is, inflexible unity of personality and of the work of art, and a tenacity that has endured throughout all his life. He has approached sculpture in a surprising fashion to the other arts, without causing it to lose any of its own characteristics and without breaking with its logical demands. He is a poet with stone as his instrument of expression. He makes it express emotions that are never found save in music or in psychological and lyric literature. He has brought this to such a point that he might be accused of being an artist of the decadence, and of exercising his art along a dangerous pathway, were he not saved from this criticism by his admirable knowledge of forms. It is for this reason that he is, perhaps, the innovator whose influence will be felt by fifty years of sculpture; it is for this reason that he will take his place in the midst of the great French classics.



THE REAL IBSEN

WILLIAM ARCHER, *London.*



VER all artists, past or present, Henrik Ibsen may claim one undesirable pre-eminence: he has been, if not more deeply, at any rate more widely, misunderstood. If his fame endures for another fifty years, someone will doubtless write a "History of Ibsen Criticism in the Nineteenth Century"

to the no small entertainment of our grandsons. Never, certainly, was there any man about whom more nonsense was talked in so brief a space of time. It is at the outside twelve years since Ibsen became known to the world at large. Down to 1888 or thereabouts, very few people beyond the limits of Scandinavia and Germany had even heard his name. In the five years between 1888 and 1893 his fame spread through England, America, France, Italy. Since 1893, he has had only two rivals in respect of world-wide renown—Tolstoy and Zola. This quaint triumvirate has unquestionably held the centre of the literary stage during the past decade; and Ibsen has been, not certainly the best known, but the most furiously canvassed, and the most hopelessly misunderstood, of the three. I propose to point out some of these misunderstandings, and to show how they have arisen.

Let us note at the outset one fact so obvious that it is often disregarded. In respect of language, Ibsen stands at a unique disadvantage. Never before has a poet of world-wide fame appealed to his world-wide audience so exclusively in translations.

To the Greek poets, the world of culture was the Hellenic world. Their works were not translated into the barbarian tongues, for such barbarians as were capable of culture made a knowledge of Greek their first step towards attaining it. The Roman poets conquered the world in an idiom which was already imperial. It was not in translations that Dante and Petrarch won the homage of Europe. So long as English remained a merely insular tongue, Shakespeare was practically unknown abroad, and grotesquely misunderstood by the few that had heard of him. All the critics who made his European fame read him in the original. Cervantes became world-famous because he wrote in prose. Lope and Calderon are mere names to the world at large because their language is little read, and because, being poets, they lose fatally in translation. The language of the French poets has been, since the Renaissance, the universal tongue of culture, just as Latin was during the middle ages. When Goethe and Schiller began to write, German was already much more widely known than Norwegian to-day; yet I am sure a little research could bring together a bouquet of early Goethe-criticisms almost as absurd, though not one thousandth part as numerous, as the "anti-Ibsenite" criticisms of the past ten years. The great Russians, again, Turgueneff and Tolstoy, write a language almost as little known as Ibsen's in Western Europe and America. But they, like Cervantes, write in narrative prose. Their works can be translated without too much loss or distortion of "values."

"But Ibsen," you say, "is also a prose-writer." That is just where the mistake comes in. Ibsen is a dramatic poet; and "Brand" and "Peer Gynt," the works which, more than any others, establish the scale of his intellectual stature, are written in brilliant, richly-rhymed lyrical verse, which is the despair of the translator. If you do not know "Brand" and "Peer Gynt," you know Ibsen only as a fragment, a torso; if you know them in translations, you may guess at his true greatness, but you cannot realize it. Having myself translated "Peer Gynt," I am in a position to say with some confidence that these poems

are untranslatable. If they are ever to be adequately rendered in English, it must be by a poet with all Mr. Swinburne's mastery of metres. It may safely be said that ten people know Ibsen's prose plays for one who has read "Brand" or "Peer Gynt" even in translation. Who can wonder, then, that a poet so imperfectly known should be so largely misunderstood?

But it is not merely his great dramas in verse that suffer in translation. The dramatic prose of his modern plays also suffers, not so much as verse indeed, but far more than any narrative prose. As I do not know Russian, I cannot tell how much the beauty of Tolstoy's style is obscured in the French or English renderings which most of us read; but we have no reason to suppose that the substantial value of his work is impaired. Ibsen's dialogue, on the other hand, is incredibly difficult to render with any justice. Its beauty,—its real and often remarkable beauty,—is almost as elusive as the charm of verse. Its simplicity is apt to come out as commonness, its high-lights of imagination are too often transmuted into mere flashes of eccentricity. Working in the intensely compressed dramatic form, Ibsen has far fewer words than Tolstoy at his command; and in precisely the same ratio is each individual word more important to the full expression of his meaning. A slovenly or cumbrous phrase, a loose approximation, the missing of a fine shade of meaning or emphasis, does far more harm to Ibsen than it would to Tolstoy, or any other narrative writer. His prose has not, indeed, the deliberate, rhetorical beauty of Maeterlinck's or D'Annunzio's; but the unobtrusive beauty peculiar to it is all the more difficult to reproduce.

Ibsen, in short, is by far the most widely renowned poet produced, in modern times, by so small a nation as Norway. His Danish-Norwegian language is spoken by some four and a half million people in all, and the number of foreigners who learn it is infinitesimal. The sheer force of his genius has broken this barrier of language, but the fragments of it, so to speak, inevitably cumber his path. It is his fate to come before, not only the general reader, but the scholar and critic, in a more or less halting

form. George Brandes is the only critic of European reputation who reads him in his own language; and even Brandes' criticism has but recently been translated into English.

Again, the mere fact that he writes nothing but dramas is a serious bar to anything like ready comprehension of his meaning on the part of the English-speaking peoples. For reasons which it would take too long to analyze, we have lost, and are but slowly regaining, the habit of reading prose plays. To many people it is a positive labor to read dialogue, while very few possess the alertness of imagination necessary to conjure up the stage-picture on which the dramatist's effect depends. Thus Ibsen is not only presented to the public in imperfect form, but even such form as the translator has succeeded in giving his work is imperfectly discerned by the great majority of readers.

In another way, too, the fact of his being a dramatist operates to his disadvantage. It brings his works, whether on the stage or in book form, primarily within the jurisdiction of the theatrical critics. It is the theatrical, not the literary, critic who has the first word about him, and gives opinion its initial trend. In France this is no special disadvantage, for there theatrical criticism stands fairly on a level with literary criticism. But can we say the same of England and America? Certainly not of England. Ibsen was first brought to the knowledge of the British public through a chorus of unexampled ineptitudes of anonymous newspaper criticism; and although not even the writers of these articles would now repeat or defend their colossal absurdities, the bias once given to the popular mind has not by any means exhausted itself. In a word, Ibsen had to run the gauntlet of Anglo-Saxon stupidity before he could gain the ear of Anglo-Saxon intelligence. Every nameless scribbler of theatrical paragraphs had had his little say about him before the voices of such men as Mr. W. D. Howells, Mr. Henry James, Professor Brander Matthews, Professor Gilbert Murray, or Mr. W. L. Courtney could make themselves heard.

Nor must I omit to mention among sources of misunderstanding the facile hero-worship of those who saw in "A Doll's House"

a sort of Woman's-Rights manifesto, and hailed Ibsen as the preacher of a social, one might almost say a social-democratic, gospel. I am the last to deny that Ibsen has in some measure suffered from ignorant enthusiasm, as well as from ignorant obloquy.

Having thus indicated how impossible it was at the outset,—how difficult it must still be,—for the English-speaking world to see anything like the true Ibsen, I proceed to examine some aspects of the distorted simulacrum who has for ten years represented him in the popular view, and is only now beginning to give place to a juster image. The popular errors which I propose to scrutinize are these:—

(1) That Ibsen is lacking in style, in literary form; (2) That he is an inefficient theatrical craftsman; (3) That he is a pessimist; (4) That he has no humor; (5) That he is “provincial” or “suburban.”

I have already dealt incidentally with the first error. It is mainly due to the imperfections, some corrigible, others inevitable, of the translations in which alone Ibsen is known to the vast majority of readers. No one who can read Norwegian doubts for a moment that the author of “Brand” and “Peer Gynt” (to say nothing of “Love’s Comedy” and the small but priceless volume of lyrics), is a consummate master of language, and one of the great poets of the century. In point of mere style, diction, poetic force, and color, one must go far to find parallels to the fourth act of “Brand,” or Aasē’s death-scene in “Peer Gynt,” to name only two out of twenty equally magnificent passages. As for the prose plays, the illusion of lack of style arises not merely from deficiencies of translation, but in some degree from a narrow ideal of dramatic style in the mind of the critic. From the time of the Restoration even to our own day, wit, epigram, a highly artificial surface-polish, has been traditionally regarded as necessary to any dramatic prose that aspired to the dignity of literature. Etherege set the fashion, Congreve perfected it, Sheridan popularized it, and in recent years the “epigrammatic” imbecilities of the cup-and-saucer school have

caricatured it. Without for a moment depreciating Congreve and Sheridan, one cannot but point out that the exclusive predominance of their "sparkling" ideal of dialogue has had a baneful effect upon English drama, so that even now the first idea of the amateur who sits down to write a play is to make his characters talk as unnaturally as possible. Critics no less than playwrights have unthinkingly given their undivided homage to this conception of style in prose drama; and, finding Ibsen's characters talk naturally, instead of in antitheses, word-plays, and conceits, they concluded that he had no style at all, and expressed himself with mere haphazard commonness. But the universally relevant ideal of style is simply "the right word in the right place"; and Ibsen puts the right word in the right place just as unerringly as Congreve, only that, aiming at a different order of effect, he necessarily judges "rightness" by a different criterion. His style is terse, tense, full of color and character. Where there is room for eloquence, it is eloquent; where there is room for beauty, it is beautiful. And as an inventor of biting phrases and haunting cadences he is without a rival in modern drama.

The criticism which saw in Ibsen an inefficient craftsman,—a "bungler" was the consecrated term in the early nineties,—is already so obsolete that I need scarcely waste time in discussing it. Every critic who knows the meaning of the word technique now sees in Ibsen a master technician. This is admitted even by people who dislike the uses to which he puts his mastery, and prefer a simpler, less retrospective and introspective method. If I were asked to name the most consummate instance of technical genius in modern drama, I think I should point to "Rosmersholm." But here, and in others of his later plays, Ibsen has gone so far beyond the currently accepted French technique that it is not surprising that newspaper critics, fed upon a few misunderstood maxims of Dumas and Sarcey, should fail to appreciate his craftsmanship. The odd thing is that the critics who called him a "bungler" founded that opinion, not upon his late plays, but mainly upon "Pillars of Society" and "A Doll's House": plays which are absolutely French in their methods and

(except in the final scene of "A Doll's House") masterly examples of the very technique which the critics professed to appreciate and expound. If they had criticized these two plays as somewhat conventionally and artificially "well-made," they would have had a strong case. As a matter of fact, they saw a man cutting a number of exceptionally intricate figures upon the ice, and thought it a good opportunity to aver that he did not know the rudiments of skating.

Let me not be understood to imply that Ibsen's technique is invariably flawless. In his latest plays, from "Little Eyolf" onwards, he shows a certain lack of staying-power, seeming to lay great bases for a comparatively inadequate superstructure. Even in some of his earlier works, such as "The Lady from the Sea," his grip slackens a little towards the end. But occasional flaws of execution leave unaffected the fact that, far from being ignorant or inexperienced in the technique of theatrical art, he has practically re-created it and enormously enhanced its efficiency.

No critical dogma has more universal currency than that which declares Ibsen to be a pessimist; yet nothing can be more clearly demonstrated than that, in the philosophic sense of the term, he is not a pessimist at all. Pessimism is the doctrine which holds life to be fundamentally and irremediably evil, pleasure a fleeting dream, pain an enduring reality, and all efforts at the amelioration of human conditions a mere fostering of that illusion which nature has implanted in us to further her own inscrutably sinister ends. Leopardi, one of the greatest and most consistent of pessimists, has summed up the creed in the following sentence: "Men are miserable by necessity, and resolute in believing themselves to be miserable by accident." But no one is more resolute than Ibsen in the latter belief. He does not say with Leopardi, "Life is bad at the best"; he says "Life is bad because so many men happen to be knaves and fools; let us correct human knavery and folly, and life will be eminently worth living." Perhaps this is an overstatement of his position. It would be difficult to bind him down to a positive assertion of the ultimate value of life. But at least he is sufficiently hopeful to

have no doubt of its being worth while to correct such evils as are plainly corrigible. Dr. Brandes has long ago defined very exactly Ibsen's attitude towards life, in calling him an "indignation-pessimist." Indignant he is at the prevailing paltriness of the human character. He is always and essentially a satirist. But pessimism, in the true sense of the word, leaves no room for satire and indignation. If life is evil to the core, why tinker at the incidental evils on the surface? Every seeming improvement in human conditions merely creates an opening for new life,—new sentience, new misery,—to rush in. This is the logical position of philosophic pessimism; it is almost entirely foreign to Ibsen.

"But," it may be said "'indignation-pessimism' is only another word for misanthropy. Ibsen may not be a philosophic pessimist, but you cannot deny that he is a misanthrope." I do deny it, most strenuously. While he has satirized human baseness and probed egoism to its most elusive recesses, he has also celebrated human goodness and nobility with all the force of his genius. I should think it unfair to go back to his romantic plays in order to prove this, were it not that one figure dating from his romantic period—Peer Gynt—is often alleged as the final evidence of his misanthropy. Let us look, then, through the whole roll of his works. His early plays abound in figures of ideal nobility: Eline Gyldenløve in "Lady Inger," Ornulf, Gunnar, Sigurd, Dagny, in "The Vikings," Margrete and Sigrid in "The Pretenders," Svanhild in "Love's Comedy." Even the erring and tragic figures, Lady Inger, Hjördis, King Skule, (and to this class we may also assign Julian the Apostate) are drawn with profound sympathy. There is not a trace of misanthropy about them. If there is a figure of ideal beauty in all literature it is surely Agnes in "Brand"—the perfect embodiment of wifely and motherly love, courage, fortitude, and self-devotion. Brand himself, too, though an erring, not an ideal, figure, errs on the side of nobleness. Was Molière a misanthrope because he drew Alceste? Surely not; yet Molière opposed to Alceste, not an Agnes, but a Célimène. In Peer Gynt, again, Ibsen incar-

nated all the baser attributes of the Norwegian character as he saw it in a moment of bitter indignation. Yet even Peer Gynt he drew with a certain sympathy. He did not put the venom into his portraiture that Molière infused into his presentment of Tartuffe. Rather he treated him with something of the kindness which Shakespeare bestowed upon Falstaff. And as a set-off against Peer Gynt, have we not the exquisite figure of Solveig? For that matter, it seems to me that Peer's mother, Aasë, the ignorant, sharp-tongued, warm-hearted, devoted old woman, drawn with such irresistible humor and pathos, should be a sufficient answer to those who read misanthropy into "Peer Gynt."

I pass over, among the modern plays, the somewhat conventional "League of Youth" and "Pillars of Society." They are transition products. The poet was feeling his way towards a new form, and was not expressing himself quite adequately. It would be unfair to take such sentimentally flawless heroines as Lona Hessel and Martha Bernick as representing Ibsen's definite view even of feminine human nature, or to dwell upon such optimistic "tags" as "The spirits of Freedom and Truth,—these are the Pillars of Society." It is worth noting, however, that, here as elsewhere in Ibsen's work, satire falls chiefly upon the male sex, while women are portrayed with a gentler and often with an idealizing touch. I am not here concerned with the justice or injustice of this partiality, which is probably no more than a survival from the romanticism of the poet's youth. What I wish to point out is that the natural tendency of the pessimist is to cog the dice on the other side, and to regard women as an essentially inferior race, the symbols and instruments of that primal curse "the will to live." Ibsen has been regarded, not without a certain reason, as one of the pioneers of the "feminist" movement. But optimism and pessimism are not more mutually-exclusive than "feminism" and pessimism.

There remain to be considered the prose dramas from "A Doll's House" onwards,—what proofs of misanthropy do we find in them? Is Nora Helmer, is Mrs. Alving, the creation of

a misanthrope? Until her world of illusions comes tumbling about her ears, Nora is the "womanly woman" of the philistine ideal; absolutely devoted to her husband and children, bright, unselfish, courageous, "domesticated" in the highest degree. You may or may not like her, but you cannot doubt that Ibsen treats her with abundant sympathy. Mrs. Alving, again, is a model of fortitude and self-devotion,—a heroine in the fullest sense. If there is one character in all his plays that admittedly typifies Ibsen himself, it is Dr. Stockmann in "An Enemy of the People,"—a character of irrepressible, almost Dickensish amiability, a model of rectitude, public spirit, and all the domestic virtues, a lover of his kind, if ever there was one. Yet the man who created him, and in some respects made him his mouthpiece, is a hater of his kind! The next play, "A Wild Duck," is gloomy, beyond a doubt; but is it not irradiated by the exquisitely beautiful and lovable figure of little Hedvig? In "Rosmersholm," again, the atmosphere is tragic; but Rosmer himself, though weak, is a character of great nobility and charm. The personages of "The Lady from the Sea" are almost all amiable, and the play, as a whole, may almost be called optimistic in tone. In the later plays, again, we have such characters as Aunt Julia in "Hedda Gabler," Asta and Borgheim in "Little Eyolf," Ella Rentheim in "John Gabriel Borkman,"—all drawn with perfect sympathy, all showing a rooted faith in the nobler possibilities of human nature. Yet even a favorably disposed critic like Mr. A. W. Pinero can attribute to Ibsen that pessimism which "despairs not only of human happiness, but of human virtue"! This from the creator of "The Gay Lord Quex" to the creator of Agnes, of Mrs. Alving, of Stockmann, of Hedvig, of Rosmer! Truly 'tis a mad world, my masters.

Of all the illusions which beset the popular mind with regard to Ibsen, none is more persistent than that which makes him out a gross and unseemly writer. I have made elsewhere a collection of some of the terms of abuse which were launched at him by English critics at the time when he first became known in England. We will, if you please, "take them as read." They are

neither agreeable nor edifying; for, if Ibsen is not gross himself, he has undeniably been the occasion of much grossness in his critics. Let one very mild specimen suffice. It appears from the *New York Critic* that when Mrs. Erving Winslow, in 1890, proposed to give a reading of "An Enemy of the People" in the drawing-room of a leader of Washington society, the lady in question rejected the idea, on the ground that she could lend no countenance to "that foul-mouthed Ibsen, who recognizes no law, human or divine." Now, how has the rumor got abroad that Ibsen is "foul-mouthed"? Mainly, I think, through the accident that the plays which first introduced him to the English-speaking public were "A Doll's House" and "Ghosts." It happens that in the first of these he incidentally touched upon the very terrible subject of the heritage of physical evil entailed upon children by the vices of their fathers; while in the second he made it the basis of his action. The subject is one of wide relevance, of immense importance; and it cannot for a moment be pretended that Ibsen's allusions to it are in themselves gross or indelicate. It was the bare fact of his alluding to such a topic at all that startled the prudery of critics who will applaud without stint the most cynical immorality, the most unblushing glorifications of debauchery, if only they are French in origin and frivolous in tone. Moreover, there was a single passage in "A Doll's House"—the famous silk stocking passage—the psychological significance of which was not at once apparent, and which, therefore, lent itself to misunderstanding. The very fact that there was not a trace of sensual appeal in Ibsen's treatment of these "unpleasant" topics—that he neither glorified passion nor sentimentalized frailty—made the critics resent still more fiercely the shock to their accepted standards of propriety. Knowing Ibsen solely in these two works (for as yet his other plays were untranslated) they were unable to see him in anything like his true proportions, or to realize how absolutely episodic in the history of his genius was his touching upon the theme of congenital disease. Yielding to that hysterical impulse of exaggeration which always overcomes Mr. and Mrs. Grundy on such occa-

sions, they imagined him persistently and ghoulishly gloating over these physical horrors. The word went forth that he was a "foul-mouthed" and foul-minded person; and henceforward, in each new play that came within their ken, people set themselves with ludicrous assiduity to discover recondite and unnameable improprieties in passages of absolute innocence. Once set the critical imagination questing on the track of filth, and it will scent asafetida in a bank of violets.

Even this superstition is gradually dying out, and people are beginning to realize that while Ibsen deals firmly, frankly, and boldly with the moral questions arising out of sex-relationships, no writer is more thoroughly exempt than he from any suspicion of complacently dallying with inflammatory topics, stimulating the sensual imagination, or in any way pandering to vulgar pruriency. It is true that he writes for men and women, not for babes and sucklings. It is true that he sometimes (in "Little Eyolf," for example) casts an uncomfortably fierce light upon the conventional moralities of marriage. But that he has any morbid predilection for the ignoble, the malodorous, or the indecent, is of all critical slanders the most flagrantly untrue.

We come now to the allegation that Ibsen has "no sense of humor." This illusion may be called the last infirmity of noble minds. Many critics who recognize Ibsen's greatness in almost every other respect, are still to be found laying it down as an axiom that humor has been denied him. As a matter of fact, it was precisely Ibsen's humor that first attracted me to the study of his works. In 1872, when my acquaintance with him began, only one of his social plays, "The League of Youth," was in existence. This is a brilliant comedy, verging now and then upon farce. The man who can read or see it and declare that the author has no sense of humor, would be capable of making the same deduction from "The School for Scandal," or "She Stoops to Conquer." Then, again, I was fascinated by the glittering wit of "Love's Comedy" (it loses fatally in translation) and by the delightfully amusing character of the Sheriff in "Brand." As for "Peer Gynt," what is it if not a carnival of humor, of whimsical

mirth, of fantastic drollery? It is a great deal more than that, of course, but it is that or nothing. If the creator of *Aasē* has no humor, we may certainly say the same of the creator of Mrs. Hardcastle or of Mrs. Micawber. If there is no humor in the Troll-King's Court, in *Peer Gynt's* Adventures in Africa, and in his colloquies with the Strange Passenger and with the Button Moulder, why then there is no humor in Rabelais, in Swift, or in Heine. These things, as I say, were what first attracted me to Ibsen, before his modern plays were written. Conceive, then, the amazement with which I heard it proclaimed by English critics that my favorite poet-humorist was a smileless fanatic, without a gleam of humor in his composition!

Looking back, however, at this distance of time, I can see how the opinion arose. Here, again, we must remember that it was not "*Peer Gynt*" or "*The League of Youth*" that first brought Ibsen prominently into notice, but "*A Doll's House*" and "*Ghosts*." These plays (with "*Pillars of Society*") were not only the first plays the critics knew, but, for some time, the only ones they could possibly know, except by vague report. Now these plays are certainly not devoid of humor,—witness the characters of Lona Hessel and Hilmar Tønnesen, of Engstrand, nay, of Helmer himself,—but it is a somewhat grim, unlaughable humor, which critics, impressed by the general atmosphere of intense seriousness, might not inexcusably overlook. Then "*A Doll's House*" was seized upon by the fanatics of female emancipation as a manifesto in their favor, and criticism, necessarily ill-informed, was only too ready to accept the "Ibsenite" view of Ibsen as himself a fanatic. The least dogmatic of thinkers,—the poet who has said of himself "My calling is to question, not to answer"—was written down a fervid dogmatist, a solemn stump-orator. And such a pre-conception is much more easily implanted than eradicated. It is true that the very next play which followed on "*Ghosts*" was a piece of genial, hearty, liberal humor, containing in Thomas Stockmann the most entirely lovable character that Ibsen ever drew. It is true that the next, again, though gloomy enough in all conscience, introduced us to

Hjalmar Ekdal, a figure of humor all compact, a monumental creation, worthy to rank with Daudet's Numa Roumestan or Mr. Meredith's Sir Willoughby Patterne. In the theatre and out of it people laughed till they were tired over "An Enemy of the People" and "The Wild Duck." But what of that? The critics who had staked their reputation on Ibsen's total lack of humor simply took refuge in the assertion that they were laughing *at* him, not *with* him, and that he did not himself see or intend the ludicrous effects he produced. Some simple-minded persons actually believed this, and had a sense of triumphing over Ibsen when they shook with laughter at Hjalmar Ekdal. But it is here more than anywhere else that the bad faith of "anti-Ibsenite" criticism manifested itself. It became with some writers a deliberate trick, an artifice of war, to pretend that an absorbed and smileless solemnity was the only proper attitude of an Ibsen audience, and that every smile that ran around the theatre was a smile at the poet's expense. This assumption, due at first to sheer ignorance, was persisted in by some writers when in their hearts they knew a great deal better.

The critics who, after seeing "An Enemy of the People," can still accuse Ibsen of possessing no humor, recall to me an anecdote of the great Norwegian comedian, Johannes Brun, who created several of Ibsen's most amusing characters. As a very young man, he joined the newly established Norwegian Theatre in Bergen, much against the wishes of his relatives. One old uncle in particular was not to be reconciled to his nephew's calling, and resolutely declined to go near the theatre. At last, rumors of the young man's success somewhat softened him, and one evening he accepted a ticket for the play. Johannes acted one of his most brilliant parts to the delight of the audience, and then took his uncle home with him to supper. For a long time the old man said not a word about the performance, obviously avoiding the subject. Finally, Johannes took the bull by the horns, and asked him point blank how he had liked the play. "Well, Johannes" said the old gentleman seriously "you mustn't be hurt by what I am going to say. I am an old man, and I see things that you don't

see. You didn't know it, but all those people were laughing at you! I could scarcely keep from laughing myself. You have no talent for acting, my dear lad." It is by an exactly similar process of reasoning that critics who have listened to the laughter evoked by Thomas Stockmann and Hjalmar Ekdal, or by the colloquy between John Gabriel Borkman and Foldal, conclude that the man who created these characters has no humor.

Even when driven to admit that Ibsen has plenty of positive or creative humor, some critics take refuge in the assertion that he lacks the negative humor which should prevent him from introducing grotesque or trivial touches out of season, and calling forth untimely laughter. This is really a part, a sub-section, of that accusation of provincialism, which is the last fallacy I propose to examine. Even an intelligent and sympathetic critic like Mr. W. L. Courtney thinks it worth while to complain that the tragic drama that you find in Ibsen is "singularly mean, commonplace, parochial,—as if Apollo, who once entered the house of Admetus, was now told to take up his habitation in a back parlor in South Hampstead." "There may be tragedies in South Hampstead," Mr Courtney continues, "although experience does not consistently testify to the fact; but at all events from the historic and traditional standpoint, tragedy is more likely to concern itself with Glamys Castle, Melrose Abbey, Carisbrooke or even with Carlton House Terrace."

It is not to be denied that Norway is a comparatively poor country, and that Ibsen's modern plays (he has given us his Glamys and Carisbrooke tragedies in "Lady Inger," "The Vikings," and "The Pretenders") deal with distinctly middle-class or bourgeois society. There is no hereditary aristocracy in Norway; there is not even very much of a plutocracy. Ibsen's characters are government officials, bankers, merchants, doctors, engineers, journalists. He actually descends to a photographer and a rat-catcher. Now to people who habitually adorn the gilded saloons of the nobility, whose acquaintances are mostly Dukes and Marquises, and who, as Mr. W. S. Gilbert puts it, never nod to any one under the rank of a stockbroker, it is

naturally painful to be invited to consort, even in imagination, with such a plebeian crew. Our English playwrights treat us much better. Moving, as we all know, in the most exclusive circles, they seek their tragic motives either in the mansions of Mayfair, or in the baronial halls of the aristocracy, their friends. I have just occupied an hour in going through the chief plays of our leading dramatists, and making a small peerage and baronetage from among their characters. I find that they introduce us to two Princesses, four Dukes, three Duchesses, five Marquises, one Marchioness, eleven Earls, seven Countesses, five Viscounts, and sundries, (such as Baronets, Ladies of undefined rank, and Honorables) to the number of about ninety-five. There is nothing "provincial," nothing "suburban" about this, is there? What could be more metropolitan or "smarter" than such a catalogue? How odd it is, then, that the "parochial" Ibsen should be world-famous, while Mr. Pinero and Mr. Henry Arthur Jones are barely struggling into notice outside the English-speaking countries!

This illusion of centrality is one of the most insidious, and certainly not the least ludicrous, to which human nature is subject. We do not often find it so crudely stated as in Mr. Courtney's antithesis between "South Hampstead" and "Carlton House Terrace";¹ but no one is ever wholly exempt from it. We cannot disabuse our minds of the idea that our own particular parish is the hub of the universe, and that habits which are not our own, manners which differ from ours, even names with which we are not familiar, are essentially inferior, contemptible, ludicrous. A quaint instance of this may be found in Mr. F. Anstey's very clever parodies entitled, "Mr. Punch's Pocket

(1) Writing for American readers, I ought to explain that South Hampstead is a middle-class suburb of London, while Carlton House Terrace, overlooking St. James' Park, is largely inhabited by Ambassadors and Cabinet Ministers. So to illustrate Ibsen's "parochialism," Mr. Courtney employs an image which can mean nothing to people who do not happen to be familiar with the topography of London. The paragraph certainly does illustrate parochialism—but is it Ibsen's?

Ibsen." The humor of these burlesques is irresistible, the satire, in the main, quite legitimate. The odd thing is that a man of education, like Mr. Anstey, should apparently conceive that there is something inherently absurd in the Norwegian language, as it appears in the titles of Ibsen's plays. He thinks it funny to represent these titles by gibberish phrases, as though it were a ridiculous foible on Ibsen's part to designate his plays by combinations of letters which happen to mean nothing to Mr. Anstey. This is precisely the attitude of the traditional British sailor to the confounded lingo of the parley-voos, which, being incomprehensible to him, is necessarily despicable. We laugh *at* the sailor; I am at a loss to know why we should laugh *with* Mr. Anstey.

The whole idea of Ibsen's "provincialism" and lack of preventive humor, so to speak, proceeds from the same illusion, in somewhat subtler forms. There are a good many things in his plays,—traits of Norwegian manners and so forth,—which quite naturally raise a smile in England or America, just as French manners raise a smile in Germany, German manners in France, English manners in America, and American manners in England. This sense of the ludicrous is unavoidable, and is harmless so long as it is unaccompanied by a sense of superiority,—so long as we remember, in smiling, that our neighbors have an equal right to smile at us. But this is just what English critics do not remember. They postulate some sort of supernal validity for the conventions to which they happen to be accustomed, and hold it inherently ridiculous on Ibsen's part to portray a society in which these conventions do not obtain. With French conventions they are more or less familiar; some of them they think ridiculous, others they regard as highly distinguished and "chic"; but at any rate they do not accuse French authors of being provincial and lacking humor because they depict French manners. Germany, a little more remote than France, is a good deal more provincial. If translations of German plays were as widely read and closely canvassed as the translations of Ibsen, I fear they would be found decidedly suburban. But Germany, after all, is a great country, which may reasonably claim to have manners

of its own. Norway, on the other hand, is a very small nation and still more remote than Germany from Carlton House Terrace, which is, by hypothesis, the centre of civilization. It follows, then, that the manners and customs of the Norwegians must be inherently ridiculous; and the artist who can dream of gravely depicting them is obviously devoid of a sense of humor.

But there lurks behind the complaint of Ibsen's "parochialism" a good deal more than the mere illusion of centrality. It springs in many cases (though, not, I am sure, in that of Mr. Courtney) from sheer artless snobbery. In dealing with modern life, the Anglo-American stage has of recent years devoted itself almost exclusively to pictures of rank and wealth. We are accustomed in the theatre to the society of marquises and millionaires; or, if we admit middle-class life at all, it is always of that order which apes, in its external appointments, the habits of the class above it. Now the Norwegian society depicted by Ibsen is frankly bourgeois. For instance, I do not remember a single liveried servant in all his plays. Hedda Gabler dreams of setting up a flunkey; but her husband exclaims at the bare idea of such extravagance. It does not appear that any of his personages are "carriage people." No doubt the Chamberlain in "The League of Youth," Werle in "The Wild Duck," Rita of "the gold and the green forests" in "Little Eyolf," and one or two others would keep carriages; but I cannot remember that the fact is ever mentioned. It is true that Mrs. Wilton, in "John Gabriel Borkman," possesses a covered sleigh, with silver bells; but she is a foreigner and an altogether exceptional person. For the most part, Ibsen's characters do their locomotion on foot, and when ladies go home from evening parties it is the custom for gallant cavaliers to escort them. Such suburban practices are very shocking to many worthy people. Again, Ibsen's habitual employment of champagne as a sort of symbol of rollicking festivity, if not of unbridled luxury, is vastly ridiculous to your clubman, your metropolitan man-about-town, who prides himself on an exact knowledge of the etiquette of the wine-list. In these and a hundred other trifling matters Ibsen betrays the fact that he is dealing with a

community in which two thousand five hundred dollars a year means wealth and five thousand dollars a year opulence. That is the melancholy truth; there is no disguising it; and if people of narrow means were necessarily people of narrow emotions, criticism would have every right to deplore this unfortunate limitation of his art. But it has yet to be proved that the capacity of human beings for sin and suffering, for exultation and agony, varies in direct proportion to their yearly income; and until this is proved, the insistence on Ibsen's "provincialism" or "suburbanism" is, what I have ventured to call it, a piece of irrelevant snobbery. One may, of course, prefer the drama of dukes, drawing-rooms, smart frocks, and powdered menials; but such a preference is not criticism. There are thousands of people who prefer the drama of dancing-girls to the drama of dukes,—*"The Belle of New York"* to *"The Second Mrs. Tanqueray"*—but they do not, therefore, go about to call Mr. Pinero "parochial."

I am far from denying that there are touches of mannerism in Ibsen which sometimes provoke an unintended smile. To people in whose eyes these surface oddities bulk so large that they cannot see the master-poet behind them, I can only apologize for having bored them with this discussion. The operation for the removal of their mental cataract is far beyond my surgery.

A master-poet—that term sums up the real Ibsen. He is a great creator of men and women, a great explorer of the human heart, a great teller of stories, a great inventor and manipulator of those "situations," those conjunctures and crises, in which human nature throws off its conventional integuments and expresses itself at its highest potency. He is more of a seer than a thinker. He has flashes of intense insight into the foundations of things; but it is none of his business to build up an ordered, symmetrical, closely-mortised edifice of thought. Truth is to him many-sided; and he looks at it from this side to-day, from the opposite side to-morrow. The people who seek to construct a "gospel," a consistent body of doctrine, from his works, are spinning ropes of sand. He is "everything by turns and nothing

long." He is neither an individualist nor a socialist, neither an aristocrat nor a democrat, neither an optimist nor a pessimist. He is simply a dramatist, looking with piercing eyes at the world of men and women, and translating into poetry this episode and that from the inexhaustible pageant. Poetry,—poetry : that is the first word and the last of any true appreciation of Ibsen. It is largely because he has applied to purposes of poetry a vehicle hitherto used only for prosaic ends that he has been so strangely misunderstood. But the period of misunderstanding is passing away, and the real Ibsen is emerging from the mists in which prejudice and imperfect knowledge have enveloped him, to take his predestined place among the great poets of the nineteenth century.



MOUNTAIN STRUCTURE AND ITS ORIGIN

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[CONCLUDED FROM JANUARY NUMBER.]



TO ATTEMPT an answer to all the questions of the preceding section would be beyond the scope of this essay, and we shall, therefore, limit our inquiry to that of the origin of folded mountains. But, as we shall see, a discussion of this question naturally involves that of the origin of dislocation mountains and relict mountains, while we shall be unable to steer quite clear of all questions relating to the source or sources of volcanic action. It will be admitted, I think, that the evidence, so far as we have followed it, strongly favors the conclusion that folded mountains are the result of lateral thrust or compression, and that the dominant crustal movement in ranges of this kind has been in one direction. But another remarkable character of these mountains remains to be noted. Almost invariably it is found that the strata entering into their composition are enormously thick and persistent as compared with the development of the same rocks in the adjacent low grounds. Or, to put it in another way, when strata are followed from the lowlands into a mountain-range they hardly fail to thicken out to an extreme degree. Thus, to cite only one or two well known examples, the folded strata of the Appalachians are some forty thousand feet thick, but thin out westward in the Mississippi basin to four thousand feet. Again, the strata which in the Wasatch Mountains reach a thickness of thirty thousand

feet dwindle away eastward to two thousand feet in the plains. Similar evidence derived from various other regions leads to the conclusion that folded mountains occupy areas of special accumulation. The late James Hall, of Albany, appears to have been the first to recognize this fact, and to formulate the opinion that a trough of deposition has in all cases preceded the process of mountain making. Let us clearly understand, therefore, that the materials of which our folded mountains have been constructed were accumulated in great elongated troughs, or basin shaped depressions—*geosynclines*, as Dana has termed them.

The strata occupying these basins are of marine origin chiefly, and for the most part they have been deposited in shallow water or in water of no profound depth. They consist, in short, of just such sediments as are forming at the present day off continental coasts, at no great distance from land. Such being the case, it is obvious that the strata in question must have been accumulated upon a gradually subsiding sea floor. In no other way can we account for the successive formation over the same area of so many thousands of feet of shallow water deposits. There is obviously, then, some connection between movements of subsidence and the accumulation of sediments; either subsidence is the cause of accumulation, or the crust may be compelled to sink under a gradually increasing weight of sediment. The latter was the view suggested by Sir J. Herschell, who, assuming the existence of a general substratum of liquefied matter, on which the crust rested, argued that any changes in the incidence of pressure, (as in the abstraction of rock materials from the land and their accumulation upon the adjacent sea floor) would cause contemporaneous movements of elevation and depression. Professor James Hall, following this suggestion, applied it to explain the origin of the Appalachians and other ranges of folded mountains. He held, therefore, that the formation of a great geosyncline was a consequence of the transference of material from the land to the sea floor, which continued to subside under the weight of gradually accumulating strata. In the case of the Appalachians the width of the trough before the process of

folding took place probably exceeded three hundred miles, while its greatest depth was forty thousand feet. Hall supposed that, after the trough had become filled to that extent, continued subsidence would bring about a state of compression above and of tension below. The strata towards the bottom of the basin would be rent and fractured, while the diminished width of surface above, caused by the curving downwards of the lower strata, would result in wrinkling and folding. But, as Whitney, Le Conte, and others have pointed out, when the great width and length of the Appalachian geosyncline are kept in view, we cannot fail to see that the concavity occupied by the strata was, after all, a broad, gentle depression. A cake of strata forty thousand feet thick, over three hundred miles wide, and some fifteen hundred miles long is proportionately a thin lenticular sheet. The amount of folding due to the subsidence of such a relatively shallow basin must, therefore, have been insignificant and quite insufficient to account for the extreme plication and the great horizontal displacements seen in the Appalachian chain. Hall was aware that his hypothesis, while it accounted, as he thought, for the folding of the strata, left the elevation of the mountains quite unexplained; it is, as Dana remarked, "a theory of mountains with the mountains left out." It became necessary, therefore, to infer another crustal movement, and to suppose that after the folding of the strata had been completed the whole region was uplifted and so converted into a wide plateau, out of which the existing ranges and valleys were subsequently carved by erosion. Other objections have been urged to James Hall's theory of the origin of mountains, but as it has fallen before the assaults of its critics, and no longer finds any supporters, we may leave it here.

One of his doctrines, however, has gained much acceptance, especially in the United States. Following Herschell's suggestion, he maintained, as we have seen, that the sea floor subsides under the load of sediment derived from the land. This view has since been elaborated and fortified by several well known authorities who appeal to the structures and formations of the mountain-chains and plateaus of western North America as strongly favor-

ing the conclusion that denudation induces elevation while sedimentation causes subsidence. No one can doubt that gravitation must tend to bring about a condition of equilibrium in the globe, so that if a rock mass equal in bulk to the Alps could be lifted from the land and placed upon the sea floor equilibrium would be disturbed and readjustment would follow,—rapidly or more slowly according to the nature of the subcrustal layers. If liquid matter underlies the crust then the adjustment would probably be more or less rapidly effected, but if the globe be solid throughout equilibrium would only be attained with extreme slowness. But mountains are not suddenly removed from the land and dumped on the sea floor; their degradation, as every geologist knows, is a very slow process, and equally slow is the accumulation of a great thickness of strata. It is conceived, however, that as the land is gradually relieved of its load and the sea floor becomes correspondingly weighted, the former tends to rise and thus keeps up the supply of material, while the sea floor under the increasing load slowly sinks, so that eventually enormous thicknesses of shallow water beds may come to be accumulated one above another in regular succession, over the same area. It is hard to believe, however, that the crust yields so readily as this doctrine implies. Enormously thick deposits are impossible in shallow water. Consequently if sedimentation be the cause of subsidence the shallow sea floor must begin to sink soon after accumulation has commenced, and subsidence must continue *pari passu* with sedimentation. But the crust can hardly be quite so yielding, and most geologists are of the opinion, long ago stated by the Swiss geologist, B. Studer, and maintained by Dana, that accumulation is not the cause but the consequence of subsidence.

Assuming, then, that geosynclinal troughs are due to independent crustal movements, and that it is their gradual development that makes the accumulation of thick masses of sedimentary strata possible, we have still to ask why such elongated troughs should be so liable to compression and lateral thrust. The gravitation theory advocated by Professor Hall having been set aside, other explanations have been advanced. Among these is

the so-called "expansion or thermal theory." Physicists tell us that the lines of equal earth temperature (isogeothermal lines) for some considerable distance downwards follow approximately the configuration of the surface, rising up under mountains, and curving down under valleys and other depressions. It is contended, therefore, that the accumulation of deep sediments in a geosyncline is equivalent to a local thickening of the earth's crust and must cause the isogeothermal lines to rise. The lower portions of a great and growing succession of strata should in this way become affected by the heat of the interior. In the case of the Appalachians we have a thickness of forty thousand feet of rock : in other words, the bottom of the elongated trough must have subsided to that extent. If the increment of temperature downwards be taken at the rate of 1°F. for every fifty feet of descent, we obtain a temperature of 800° for the bottom of the geosynclinal basin. It is quite possible, of course, that at some distance from the surface the rate of increase may diminish, or, as some suppose, it may be greater. But, whatever the truth may be, we cannot doubt that at a depth of forty thousand feet the heat must be very great. Probably, too, the temperature may have increased downwards more rapidly in early geological times than it does at present ; and if so then the strata occupying the Appalachian geosyncline may have been subjected to a much higher temperature than 800° . We can understand, therefore, that with a highly elevated temperature the strata would expand, and this is the basis of the theory of rock folding advocated by Mr. T. Mellard Reade. According to his view the deformation of the strata occupying a geosynclinal trough is due partly to the dilatation of the heated masses themselves, and partly to the expansion caused by the intrusion of igneous rocks. The compression produced in this way is internal, and proportional to the depth of the strata, and is thus concentrated along the major axis of the geosynclinal basin, where the bedded masses attain their greatest thickness. An anticlinal fold, according to Mr. Reade, is first developed along this line, and thereafter fold after fold is compressed against it, and so the work of mountain

building proceeds. At the same time fused or semi-fused matter in the crust is forced up from great depths, chiefly along the axis of the growing range, and this igneous matter, expanding laterally, forces back the folded strata, and compresses them still more. Further, the very intrusion of such heated masses must raise the temperature of the rocks amongst which they are thrust, and so tend to increased compression. With a subsequent fall of temperature contraction would take place, but this would not entail the collapse of the mountains raised by compression. On the contrary, according to Mr. Reade, as soon as contraction supervened, the crust would be fissured and rent,—normal faults or dislocations would come into existence, and the mountains would thus be wedged up by the irregular subsidence of great crust blocks.

Several objections to this expansion or thermal hypothesis have been advanced. It has been pointed out by Professor Neumayr, for example, that the explanation proceeds upon the assumption that the filling up of the geosynclinal trough was completed before heating and dilatation commenced, whereas it can hardly be doubted that the isogeotherms would begin to rise soon after sedimentation had set in, and would continue to rise with the gradual infilling of the basin. If it be maintained that the rise of the isogeotherms could not have kept pace in this way with the growth of the deposits, we shall then be compelled to assume either a very rapid rate of sedimentation or an extremely slow rise of the isogeotherms, neither of which is probable. And even if such were the case, Neumayr continues, a portion of the heat must nevertheless have been ineffective for the purpose required, seeing that the isogeotherms must have commenced to rise while the strata were yet in process of formation, so that in this way some of the heat requisite for expansion must have been lost. Again, if we suppose that the strata in the geosyncline did not begin to be warmed up until their formation had been completed, it is obvious that the lower beds in the trough must have been attacked long before the upper strata became affected. In this case we should expect to find some difference between the folds

in the deeper and the higher parts of a geosyncline. But no such difference or distinction is visible; on the contrary all the facts go to show that the whole series of strata from top to bottom was folded and mashed together at one and the same time.

Another objection has been forcibly stated by Dana, who points out that the expansion caused by a rise of isogeotherms is inadequate to account for the amount of compression which has taken place. Mr. Reade finds that rocks on an average would expand 2.75 feet per mile for every rise of 100°F. Applied to the case of the Appalachian Mountains this would give a linear expansion of little more than one mile for two hundred and fifty miles,—the present width of the geosyncline. The actual contraction produced by folding, however, is greatly in excess of one mile, having been estimated at forty-four miles, or even at twice that amount. In other words, were all the folds and overthrusts of the Appalachians to be smoothed out the width of the geosyncline would probably exceed three hundred miles.

There are other objections which have been urged against this expansion theory. It does not, for example, explain why the axes of the folds should all follow the longer axis of the geosyncline. If folding were simply the result of rock expansion, we should expect to find synclines and anticlines traversing the region affected in many other directions; for, as Dana has remarked "in a trough having the depth only a thirtieth or a fortieth of the breadth, expansion would act nearly equally in all directions." Again, if expansion by heat has brought about the folding and horizontal displacements seen in the Alps and similar ranges, how comes it that so many areas built of enormous thicknesses of relatively undisturbed strata, have escaped the process of mountain making? In the plateau of the Colorado district and in the Gondwana system of peninsular India we encounter vast successions of approximately horizontal strata, which have been accumulated one upon another over gradually subsiding areas. Surely the deposition of these great masses should have caused a rise of the isogeotherms, yet the strata are not conspicuously folded, nor have they been metamorphosed by the action

of heat. Finally, it cannot be admitted that the heat derived from intrusions of igneous rock has helped much in the production of rock folding. In many ranges, indeed, intrusive masses are sparingly present or do not occur at all; in other mountains, again, they frequently prove to be of later date than the folding and fracturing of the strata; while in yet other cases they have been intruded long before the mountains were uplifted.

The theory of mountain making which finds most favor at present is that advocated by Dana, Le Conte, Suess, Heim, and many others. According to this view, folded mountains owe their origin to the sinking of the superficial crust of the globe upon the cooling and contracting interior. If we think of it, there must be a gradual passage downwards from the cooled crust into the still uncooled nucleus. At some depth from the surface, therefore, a level will be reached at which the interior has not yet begun to cool and contract. Theoretically we may consider all the matter above that level as constituting the crust. The lower section of the crust, reposing immediately upon the uncooled nucleus, is cooling and, therefore, contracting and must obviously be in a state of tension, to which it will seek to yield by rupturing. Not that fissures or cracks will actually be formed, for the enormous compression exerted by the upper crustal layers will necessarily prevent anything of the kind taking place. The stretching of the crust by lateral tension must diminish upwards until a level is attained where it will cease altogether. Above that level the crust is no longer in a state of lateral tension but in one of lateral compression,—it is not stretching but shrivelling. And the lateral compression which causes the superficial crustal shell to shrivel increases upwards and is, therefore, greatest at the surface. There are thus two kinds of contraction to which the crust is subjected: namely, circumferential below and radial above. Where the former is in excess stretching with tendency to rupture is most marked, where the latter prevails lateral compression is dominant; where the one equals the other there is no strain. It is, therefore, only the crustal shell above this neutral

zone or "level-of-no-strain" which is available for mountain making by secular contraction. How thick that shell may be we cannot tell. But as the folded rocks of certain mountain-chains reach a thickness of ten miles or more, it is clear that if the contraction theory be well founded, the upper crustal shell must reach that thickness at least. Several attempts have been made by physicists to estimate the depth of the neutral zone, some putting it at two miles, others at five miles or so. Now, if it can be shown that the level-of-no-strain occurs at so small a depth from the surface as five miles or less, the contraction theory would seem to be inadequate. But, as Mr. Davison has pointed out, the depth of the neutral zone has been calculated on the supposition that the surface of the earth is smooth and spherical. He thinks it is probable, however, that the surface inequalities which exist would account for folds amply large enough to bury the thickest known masses of sediment. But the estimates which place the level-of-no-strain at the slight depth of two or of five miles are after all based on assumptions which may not represent the truth. It has been assumed that conductivity and the coefficient of dilatation or expansion are constant, but it may well be that both increase with the temperature. If the latter be the case, the result, according to Mr. Davison, would be a considerable increase in the depth of the neutral zone and in the total amount of rock folding due to the cooling of the earth. "It is possible," he remarks, "that besides their variation with the temperature both the conductivity and the coefficient of dilatation may be greater in the material which composes the earth's interior than they are in the surface rocks. Mr. Rudski has also pointed out that the depth of the surface-of-no-strain will be much greater if initially the temperature, instead of being uniform, increased with the depth; and there is some reason for supposing that this may have been the case." Mr. Davison therefore concludes that calculations as to the alleged insufficiency of

the contraction theory of mountain making are at present inadmissible.¹

The external crustal layer being subject to lateral pressure the geologist has next to inquire why relief by folding and horizontal displacement should so frequently have been found in areas of maximum accumulation. Professor Le Conte has ably advocated the view that such zones of thickened sediments are lines of weakness, owing to the rise of the isogeotherms and the consequent softening or even fusing of the rock masses. We are to conceive of a deep geosynclinal trough, filled with sedimentary strata, the lower portions of which, brought within the influence of the earth's internal heat, are rendered soft. When lateral pressure afterwards begins, the softened rocks yield to compression by buckling and folding, and thus upswelling and all the phenomena of overthrusting and horizontal displacement are brought about. Moreover, no sooner does the process of mountain making commence than the heat is necessarily augmented by the crushing and mashing of the strata. The author of this suggestive view, therefore, infers that underneath all folded mountains there is or was a layer of fused or semi-fused matter, which by cooling and solidification becomes a metamorphic or granitic core, such as is so often exposed by denudation along the axis and crest of many great mountains. Professor Le Conte's theory seems to explain

(1) All these estimates of the depth of the neutral zone or level-of-no-strain are, of course, based on the supposition that the lapse of time since the earth solidified at the surface has been approximately determined by physical research. Geologists, however, cannot make the facts of their science harmonize with the conclusions arrived at by physicists, and have long suspected that these conclusions are perhaps not so well based as they seem to be. In his recent interesting and suggestive articles in *Science* (Vols. ix and x, 1899) Professor Chamberlin has voiced these suspicions and pointed out that the present generally accepted doctrine of the evolution of the globe from a white-hot liquid is after all based on assumptions, and cannot, therefore, be accepted as if its truth had been demonstrated. On the contrary, he thinks it not improbable that the earth has been formed by meteoric accretion with sufficient slowness to remain essentially solid at all stages, and that the high heat of the interior is the result of the self compression of the mass during its accretion.

so many of the phenomena characteristic of folded mountains that it has naturally been received with much favor. Yet some of the objections to the expansion or thermal hypothesis seem to be applicable also to Le Conte's conception of the origin of mountains. The fact that enormous accumulations, such as we see in Eastern India and in the Colorado Plateau, have remained comparatively undisturbed appears to show that thick masses of sediment are not necessarily lines of weakness. Moreover, it has been proved that movements of compression and rock folding have taken place after the accumulation of no great thickness of strata. In the Alps of Europe, for example, we find Upper Cretaceous strata of inconsiderable thickness lying upon the upturned and denuded edges of all the older rocks of that range. From this it is to be inferred that after these older rocks had been folded, and for a long time subjected to erosion, depression ensued, and the younger strata were then deposited upon a much denuded surface. Now these Upper Cretaceous rocks are not nearly so thick as the undisturbed strata of the Colorado Plateau, and yet they in their turn have been folded and contorted in the most extreme fashion.

From these and other considerations one is led to believe that it is not the strata occupying geosynclinal troughs which constitute lines of weakness, but the geosynclinal structure itself which is unstable. Protracted spasms of mountain making occur from time to time within such areas,—sometimes after the accumulation of enormously thick strata, at other times after only inconsiderable deposits have taken place.

Reference has already been made to the fact that the rocks of which folded mountains are composed are mainly or very largely marine and chiefly of shallow water origin. We thus come to the curious conclusion that the foundations of all the great folded ranges of the world—old and young alike—have been laid in the sea, at no great distance from the land. Taking a broad view of the lithosphere we find that its general configuration is simple enough. We see a broad plateau-like elevated portion over which the continents and larger islands are distributed, and a great flat-

bottomed basin-like area occupied by the ocean, but to which the ocean is not confined, for relatively shallow water invades the protuberant portion of the lithosphere more or less extensively. Keeping out of view the present distribution of land and water, we may term the protuberant area the *continental plateau*, and the depressed portion the *oceanic basin*. As the earth is a cooling body, we must admit that the dominant movement of the lithosphere can only be one of subsidence, and that a movement of the kind must induce lateral compression in the crust above the level-of-no-strain. According to the contraction theory, therefore, relief from that pressure is found by folding or by overthrusting or by both together, and the crust naturally yields where it is weakest. Now many considerations lead to the belief that the chief zones of weakness in the crust are those that separate the continental plateau from the oceanic basin. These zones or belts, occurring as they do where continental plateau and oceanic basin meet, are necessarily submerged, but as a rule, not very deeply. They thus form areas of maximum sedimentation, for it is over such relatively shallow depths, never far removed from continental areas and large islands, that the wreckage of the land is chiefly distributed. As the sea floor slowly subsides, deposition of sediment continues to take place, and thus by and by enormous thicknesses of material tend to accumulate upon the zone of special instability. Eventually, however, a time comes, when the lateral thrust of the subsiding crust takes effect, and the unstable zone yields by folding and upswelling,—a mountain-range, in short, comes into existence. We have no reason to believe that the mountain making process is catastrophic; on the contrary, such evidence as we have points in quite the other direction. The movements appear to have been generally gradual, although they may well have proceeded now and again by fits and starts, accompanied by jarrings and earthquakes.

During its slow rise a mountain-range was doubtless attacked first by the sea and thereafter by subaerial agents of erosion, so that long before the uplifting movement had ceased denudation must have made considerable progress. In the structure of many

ranges we can read the history of successive epochs of uplift, separated the one from the other by longer or shorter intervals of erosion and deposition. It is obvious that in such cases the position of the unstable zone has remained unchanged. Again and again the mountain area has subsided to be as often reëlevated by the folding and overthrusting of younger strata along its flanks. In other cases, however, the uplifted mountains have been at once pressed against and added to the relatively stable or stiffened continental plateau, and the zone of instability has then shifted seaward.

The fact that granite appears to form the cores and crests of many great mountain-chains led, as we have seen, to the formerly prevalent belief that the igneous rock was the cause of uplift. Within recent years geologists have been favored with what may be looked upon as a revised edition of that old plutonic theory. Professor Reyer, after many interesting experiments with plastic materials, which showed that rocks under enormous pressure behave very much like plastic bodies, came to the conclusion that the folding of mountain-chains might be otherwise accounted for than by contraction. His central idea is that a granitic core rising into a mass of strata would push the latter upwards until a sufficient height and steepness had been attained. Thereupon the highly inclined strata resting on the shoulders of the granitic core would give way, and gliding downwards would, under the pressure of their own weight, behave as plastic bodies and so become folded and contorted. The granite being in this way divested of its covering would appear as the axial crest of the mountain-range. Numerous objections might be urged against this ingenious "gliding theory," but its inadequacy becomes sufficiently apparent when we recall the fact that certain ranges have no central axis or core of igneous rock, while in other cases, where such a core does exist, the strata abutting against it not infrequently contain fragments of the granite and its accompanying schists, or may even be largely composed of their disintegrated materials.

The occurrence of granitoid and schistose rocks along the crest of a mountain-range is readily explained by the contraction

theory. In many cases it has been proved that those rocks were in existence long before uplifting commenced,—that they had been greatly denuded and eventually buried under thick accumulations of strata before the process of mountain making had been started. When, at last, lateral crushing and thrusting succeeded, the older rocks were simply squeezed up and folded along with the strata lying above them. Not infrequently under these circumstances the ancient granitoid masses acquired a foliated structure, while new planes of schistosity were developed in the schists. In other cases the granite has obviously been injected long after the completion of the rock folding process. The absence of a granitic and schistose core in the case of certain ranges offers no difficulty. The stratified formations of the earth's crust appear everywhere to be underlaid, at a less or greater depth from the surface, by a pavement of granitoid rocks, and if rocks of this kind are not exposed along the crest of a mountain-range, it must simply be because the covering strata are so thick that denudation has not yet succeeded in removing them.

Not all the granitoid and schistose rocks, however, which occur in a mountain-range are of such great antiquity. Many, as we know, are of metamorphic origin : that is to say, they are rocks of various kinds which have become altered during the mountain making process. The phenomena of dynamical metamorphism are such as to convince one that the forces brought into play during the birth throes of a mountain-range are quite competent to induce any amount and degree of rock change. It does not seem necessary, therefore, to suppose that the metamorphism of a thick series of folded strata, has been due to the rise of the isogeotherms,—that, in other words, the rocks have been altered by heat derived from the interior of the earth. It is true that rock folding would appear to have been gradually accomplished, and consequently much of the heat resulting from compression may have been dissipated during the slow process of mountain making, nevertheless the actual facts leave us in little doubt that sufficient heat was retained for all the purposes of metamorphism. It has been remarked by every student of mountain structure

that metamorphic changes are most pronounced in those parts of a range where the proofs of crustal movement are most conspicuous. In a word, metamorphism appears to have been proportionate to the pressure. We would not be understood, however, to deny the probability of enormously thick strata having been altered by the heat of the earth's interior. It seems reasonable to infer that metamorphism of some kind must be going on at great depths in the crust, but one cannot forget that there exist very thick strata, the lower portions of which must at one time have been buried to depths of twenty thousand feet or more, and yet these exhibit no traces of metamorphic action. This makes it doubtful whether the increase of temperature from the surface downward is as much as 1°F. for every fifty or sixty feet of descent, otherwise we might have expected to meet with some marked evidence of metamorphism in rocks which have been buried so many thousand feet below the surface. At much greater depths rocks can hardly remain unchanged, but at what particular distance from the surface pronounced metamorphic action is brought about by the heat of the earth's interior, we do not know. It seems more than doubtful, however, whether the metamorphism so often visible in the convoluted rocks of a mountain-chain can in any measure be attributed to such a source.

The history of mountain making in Europe, as set forth by Professor Suess and the late Professor Neumayr illustrates so well the contraction theory of mountain formation that a brief sketch of the general results may fitly be given here. It has long been known that the folded mountains of Europe do not all belong to one period. While some are of relatively recent age, others date back to very early geological epochs. But to the eminent geologists just named belongs the credit of having been the first to correlate the evidence and to educe from it a more or less coherent tale of crustal changes.

The oldest mountain-ranges of which we have any certain knowledge made their appearance in the north and northwest of Europe. They date from pre-Devonian times and their relics are now seen in Scandinavia and the mountainous parts of the

British Islands. The general direction of these ancient ranges was from southwest to northeast, and at the time of their formation they may well have exceeded the Alps in elevation. The rocks of which they are composed consist essentially of coarse gneiss and overlying strata of Cambrian and Silurian age. Their structure is eminently that of folded mountains,—the folds being usually closely compressed and unsymmetrical, while evidence of horizontal displacement is frequently more or less conspicuous. In the British area the geological structure increases in complexity towards the northwest of Scotland, where overturning and horizontal displacements are developed on a gigantic scale, pointing to crustal movements of an intensity to which hardly any parallel has yet been met with elsewhere. The researches of Messrs. Peach and Horne have shown that in that region sheet after sheet of rock, often measuring many hundreds of feet in thickness, have been driven forward one upon another for distances of sometimes ten miles and more in a northerly or northwesterly direction. Further southward crustal movements have resulted rather in folding than in horizontal displacement,—although “thrust planes,” as they are termed, are now and again encountered even in the more southerly tracts. The ancient ranges, of which the British and Scandinavian heights are the sorely wasted fragments, are grouped together by Professor Suess as the “Caledonian Mountains.” It would appear, then, that the earliest mountain-ranges of Europe owed their origin to a horizontal movement directed from south or southeast. In the extreme northwest Palæozoic strata were thrust against a rigid, unyielding area of Archæan gneiss,—probably an ancient land,—and great sheets of that old gneiss were successively sliced off and driven forward along with the Palæozoic rocks, until they came to rest upon the borders of the rigid Archæan area. South of this marginal region, however, the Palæozoic strata were compressed into unsymmetrical folds, the crests of which tended generally to lean over in the direction of crustal movement.

To that epoch of mountain making, succeeded a protracted period of dry land conditions, during which the Caledonian

Mountains were gradually lowered by erosion and denudation, and extensive areas were eventually reduced to plains. Consequently when submergence ensued in late Palæozoic times, broad regions disappeared below the waters, and the remnants of the Caledonian Mountains then existed as a few larger and smaller islands. During this period of submergence which, with many oscillations of level, continued to nearly the end of the Carboniferous period, immense quantities of sediment gathered over the depressed areas in Britain and the tracts lying further south.

Before the Carboniferous period had closed, however, a new series of crustal movements was initiated, the thrust coming as before from the south. The sea now retreated, and the Caledonian mountain land reappeared, thickly clothed over wide areas with Devonian and Carboniferous strata, the whole forming a relatively rigid area, in which mountain making by compression was no longer possible. It was along the southern margin of that stiffened area, therefore, that rock folding and horizontal displacement next occurred. Lofty mountain-ranges came into existence in France, Belgium, and Middle Germany,—the greatest rock displacements taking place, as before, along the northern frontiers of the newly elevated mountains. The mountain flexures of this epoch have been traced over a very wide region, extending east from Brittany to the base of the Carpathians, and south from a line including the southern part of Ireland, the south of England, the Belgian coal-fields and the mountains of Middle Germany down to the Pyrenees, the Jura, and the Alps. Throughout this extensive area all strata older than the Permian are more or less highly disturbed, the geological structure showing clearly that the lands in question were traversed from west to east by lofty mountain-ranges; and to these old ranges, now denuded in places almost to base-level, names have been given by Professor Suess. The mountains of which the folded rocks of Brittany are the relics are termed the "Armorican Mountains," while the old ranges of Middle Germany are known as the "Variscian Mountains." As it is convenient to have one general name for all these pre-Permian ranges we may adopt that sug-

gested by Professor Bertrand and speak of them collectively as the "Hercynian Chain."

The earth movements which brought the Hercynian Mountains into existence had caused the disappearance of the open Carboniferous Sea from western and central Europe, extensive lagoons and salt lakes taking its place. Long continued erosion eventually succeeded in greatly reducing the Hercynian heights,—the old mountains being over wide regions denuded down to their base-level. Hence, when submergence ensued, the Permian lagoons and inland seas extended their limits, and broad areas of the drowned land were gradually buried under thick accumulations of sediment. This submergence was continued into Triassic and Jurassic times, and when it had reached its climax, open sea occupied not only the Hercynian area but vast regions beyond. In that sea the less reduced portions of the Hercynian mountain land appeared as islands; such were the Erzgebirge, the Fichtelgebirge, a large part of the Rhenish Highlands, and the heights of Brittany. The submergence was maintained for a protracted period so as to allow of the formation of a great thickness of deposits. Hence, when the sea, towards the close of Jurassic times, again retreated, the Hercynian lands, and wide tracts beyond, appeared as broad plains and plateaus composed of horizontal strata, overlooking which in many places stood those hills and mountains which had played the part of islands in the Jurassic Sea.

The European continent at that time seems to have extended south to the Pyrenees and the Alps, and it was along this old coast-line that the next great uplift took place. The history of the Alps, however, is somewhat complicated, for these mountains are not the result of one but of successive crustal movements. The latest extensive movement occurred in Tertiary times, but that had been preceded by much rock folding at widely separated intervals, as in Upper Cretaceous and in pre-Permian times, and in all probability the last named was not the earliest period of deformation. The Alps thus form a typical polygenetic chain.

It would seem that after the formation of the Hercynian chain

the Alps formed part of the continent: at all events they experienced much rock folding in pre-Permian times, and at the close of the Palæozoic period did not exist as an independent chain. A strong line of demarcation did not then as now separate the Alps from their *Vorländer*. But the Alpine region, as Neumayr has remarked, long retained its plasticity. This is proved by the very fact that the mountains are polygenetic. After a period of rock folding an area so affected usually acquires, as we have seen, a certain degree of rigidity, and thus when subsequent crustal movements take place lateral pressure results simply in the formation of new folds pressed against the flanks of the older series. The latter may to some extent be fractured and broken, but they have sufficient rigidity to resist any repetition of the folding process. This is well exemplified in the structure of the Alps. In Permian and later times these mountains shared in the profound erosion and denudation by which the Hercynian heights were so greatly reduced. Consequently when the wide Jurassic Sea invaded Middle Europe and the Alps became almost wholly submerged, sediments were deposited over the surface of the drowned mountains and the regions beyond. At a long subsequent period, when the process of lateral crushing was resumed, the Mesozoic sediments, which had accumulated to a great thickness in front of the Alpine lands, were compressed into mighty folds against the old denuded ranges. But the deposits laid down upon and within those ranges were left comparatively undisturbed, and are still seen resting in almost horizontal positions upon the upturned and worn edges of the older rocks.

The last great crustal movement, to which the Alps owe their present elevation, occurred in Tertiary times. Before that movement took place the instability of the Alpine zone was evidenced by the fact that throughout its extent depression had continued to take place, and thick deposits of older Tertiary age came to be deposited in front of the range and even in the heart of the mountains, just as had been the case in Palæozoic and Mesozoic times. When at length mountain making was resumed these younger sediments were in their turn compressed, contorted,

thrust against, and even driven forward upon the margin of the more rigid and stable Hercynian area. Within that stable area, however, the Mesozoic and later strata were not affected by these grand movements, but retained their original positions.

Thus we may look upon northern and western Europe down to the border of the Mediterranean as a region which has acquired relative stability owing to successive thrusts or movements of compression directed from south to north.

From the fact that the strata entering into the formation of a range of folded mountains are usually thicker and more persistent than in adjacent regions, we may conclude that along the borders of a compressed and relatively rigid area the crust is unstable and subsiding more rapidly than the contiguous stable ground—that, in short, a rigid area will usually be bordered by a geosyncline. Sometimes this geosyncline is closed up after one prolonged spasm of mountain making; at other times it survives several such spasms, and the mountains eventually developed out of it are then polygenetic, i. e., the result of several successive thrusts and upswellings.

Folded mountains are often traversed in various directions by what are known as normal faults,—more or less vertical dislocations along one side of which the rocks have dropped to lower levels. In most cases these faults are of later date than the folds and horizontal displacements. They seem to have come into existence after the process of lateral thrusting had ceased, and it can be shown that, in the case of polygenetic ranges, such vertical dislocations have followed upon each successive epoch of compression. In short, it would seem as if mountain masses, on the relaxation of lateral pressure, tended to settle down unequally along lines of fracture. It is not surprising, therefore, that deeply depressed areas should occur at intervals among the disrupted ranges. Depressions of this nature appear to have come into existence after each uplift of the Alps, and in succeeding periods of subsidence they became receptacles of sediment. To such “outliers” reference has already been made, special attention having been drawn to the fact that they escaped the compression which

buckled up deposits of the same age that lay outside the stiffened mountain area.

Normal faults are not restricted in mountain-ranges to the zone of greatest disturbance, but are even more conspicuous in the adjacent zone of least disturbance, where we may suppose the relief from lateral compression was most readily attained. Occasionally an enormous vertical dislocation with its downthrow on the side of the zone of least disturbance skirts the line of mountain elevation for a long distance, and this has the effect of producing a marked depression at the base of the range. Such is the origin of the plains of northern Italy on the south side of the Alps, (See Fig. 9.) and the great plains of Hungary bear the same relation to the Carpathians.

It is in the regions of greater rigidity, however, that normal faults play the most conspicuous rôle. The folded rocks of the Alps, as we have seen, have been pressed against and even overthrust upon the highly denuded Hercynian plateau land. During the great marine transgressions of Mesozoic times, that land, it will be remembered, was to a large extent submerged, and became eventually covered with strata of various kinds, exceeding in some regions three thousand feet in thickness. The region of the Alps appears also to have been largely submerged, and was perhaps represented then by only a few inconsiderable islets. Towards the end of the Jurassic period, however, the waters appear to have retired from most of the drowned regions of middle Europe, but they lingered for a considerably longer time in the neighborhood of the Alps.

Thereafter commenced a new series of changes. The Alpine area was again uplifted, and the strata which had gathered in the Mesozoic seas were compressed and folded against the older ranges. The wide Hercynian lands, more or less thickly clothed with Mesozoic sediments, and forming at that time elevated plains or plateaus, were now traversed in various directions by numerous dislocations. Along the lines of such normal faults broad areas subsided to lower levels, leaving here and there outstanding blocks

and masses, such as the Vosges, the Black Forest, the Harz, and other mountains, to dominate the surrounding depressions.

In this dislocated region, therefore, we encounter excellent examples of two kinds of mountains. First, we have ancient *relict mountains*, represented by such heights as the Erzgebirge, the Fichtelgebirge, and others, which are simply the sorely reduced fragments of the ancient Hercynian folded ranges. Next we have true *dislocation mountains* or "Horste," as they are termed by German geologists, of which the Harz Mountains may be taken as a type. These are recognized as fragments of the old Hercynian plateau, severed by vertical dislocations from the now depressed rock masses with which they were formerly continuous. Such Horste thus testify to a former higher crustal level. Like the relict mountains of the same region they are composed of the ancient schists and Palæozoic rocks which were folded and fractured in pre-Permian times. They are portions, in short, of that old Hercynian land which before Jurassic times had been reduced to base-level, and later on became deeply buried beneath Mesozoic sediments. It is probable, therefore, that when the fracturing of the Hercynian plateau took place, the resulting Horste were in many cases capped by Mesozoic strata. But so much erosion

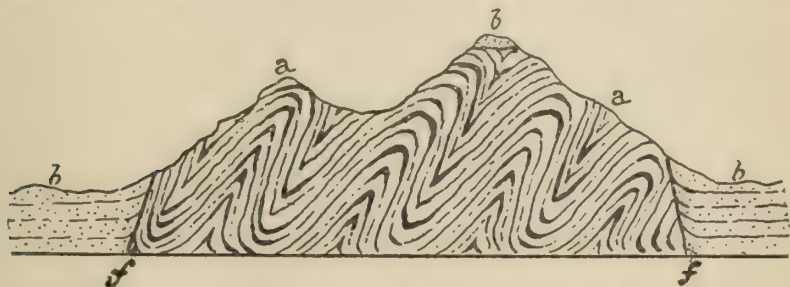


Fig. 15. *Horst Type of Dislocation Mountains.* a, a, a, Folded Palæozoic strata; b, b, b, Mesozoic strata; f, f, Normal faults.

and denudation of those heights has since taken place, that only at rare intervals has any trace of such cappings remained, although Mesozoic sediments still lie thick upon the surrounding depressed areas (Fig. 15).

The origin of the faulting which split up the Hercynian

plateau can only be conjectured. If we may believe that the retreat of the Mesozoic seas from Middle Europe was the result of a general elevation of the crust within that region we seem to get a ready explanation of the subsequent vertical displacements. We may suppose that the old sea floor was uplifted by a kind of continental elevation, or bulged up by the formation of a series of broad, flat swellings or *geanticlines*, as they are termed, the culminating parts of which must have attained as great an elevation at least as the present summits of the Harz and other Horste. This upward movement we may further suppose was contemporaneous with the depression of the Alpine region which continued down to late Cretaceous times. Thereafter came the uplift of the Alps, and when eventually relief from pressure was obtained, the settling down of the fractured rock masses in that mountain region would follow in due course. Similarly, after the inferred elevation of the Mesozoic sea floor had been completed, the stretched and strained supercrust within the Hercynian regions might be expected to collapse, and the shattered crust to subside unequally along lines of normal faults.

But this explanation, feasible as it may seem, is only conjectural. According to Professor Suess great marine transgressions are not the consequence of crustal deformation, but rather of secular movements of the ocean itself. He is of the opinion, moreover, that the only vertical movements of the crust which can take place are the bulgings and uplifts which accompany lateral compression, consequent upon the cooling and contraction of the earth. He denies the possibility, therefore, of continental uplifts, and would doubtless attribute the disappearance of the Mesozoic seas from Central Europe to a change in the statical figure of the oceanic envelope. Possibly, also, the apparent elevation may have been largely due to depression within the great oceanic basin,—a movement which would tend to draw away the sea from the continental plateau. However that may be, it has been proved that considerable deformation or warping of wide regions has taken place within recent times. Although the rigid areas of the land resist the formation of mountains by compression,

they are certainly not free from the process of warping and of pronounced elevation. The researches of Baron de Geer, for example, lead to the conclusion that a very extensive area in north and northwestern Europe has been undergoing gradual deformation since glacial times. He finds that the distribution and position of the old "raised beaches" of Scandinavia prove that these have been uplifted through a real continental elevation of the earth's crust. In the present state of our knowledge, therefore, if we cannot positively assert that the retreat of the Mesozoic seas was caused by continental uplift or by the formation of broad geanticlines, accompanied possibly by contemporaneous subsidence of the oceanic basin, neither can we conclude that Professor Suess's theory is a more probable explanation of the facts.

It is beyond the purpose of this essay to discuss the question of volcanic action, yet as we have glanced at the evidence furnished by Europe as to the origin of various kinds of mountain structures, it may not be uninteresting to note certain facts supplied by the same region as to the association of volcanic action with crustal movements. It has long been known that there is some connection between extensive faults and volcanic phenomena. Abundant evidence derived from many parts of the world shows that in geologically remote and in recent times alike volcanic intrusions and eruptions have frequently taken place along lines of dislocation. That is no more than might have been expected, for it is obvious that molten matter will more readily find a passage to the surface through fractures, which are lines of least resistance, than across unbroken rock masses, whether bedded or not. Such faults must obviously have been in existence before they could be utilized. Indeed there is reason to believe that not infrequently the dislocations belong to one geological period, and the eruptions to another and much later period. In many other cases, however, we are led to suspect that both the faults and the eruptions belong to one and the same epoch of crustal disturbance. According to Suess, Neumayr, Michel-Lévy, and others, the numerous volcanic eruptions of

Central France, the Eifel, Höhgau, Bohemia, and Austria-Hungary,—all of them of Tertiary age,—are connected with the vertical dislocations that came into existence during the last great uplift of the Alps and the Carpathians. So in like manner the volcanic phenomena of Western Italy are intimately connected with vertical dislocations consequent on the uplift of the Apennines.

It would seem probable, therefore, that the subsidence of the crust which follows movements of compression and upheaval is at all events one determining cause of volcanic action. Possibly during a movement of elevation, deeply buried areas of igneous rock, relieved from pressure, assume the liquid form, and are ready to issue to the surface when subsidence of the supercrust follows,—the pressure of the sinking masses, aided doubtless by the action of steam included in the molten matter, forcing the latter upwards along lines of fracture and displacement. It is quite conceivable that even while the process of rock folding is going on, molten matter may rise into the basal part of the upswelling area, and thus become intrusive, but it seems hardly likely that it could break a way to the surface across the strata while these were being closely squeezed and mashed together. Its opportunity of escape could only arrive when the pressure was relaxed and the shattered crust had begun to settle down. But the origin of volcanic action is too large a question to be discussed here. It must be admitted that the more or less close association of igneous rocks with folded mountains is too common to be quite accidental, and many geologists therefore incline to the belief that mountain elevation and volcanic action are in some way connected. The very distribution of existing volcanoes, situated as so many of these are along the crests of the youngest and greatest mountain-chains of the globe, at once suggests such a connection.

We may now briefly sum up the general results of the geological study of mountain structure and its origin. We have seen

that mountains, notwithstanding their infinite variety, can be readily arranged in two divisions as follows:—

I. Original or Tectonic Mountains.

1. Accumulation Mountains (Volcanoes).

2. Deformation Mountains:—

a. Folded Mountains.

b. Dislocation Mountains.

c. Laccolith Mountains.

II. Subsequent or Relict Mountains.

Concerning the mode of formation of accumulation mountains all geologists are agreed. Volcanoes are unquestionably built up at the surface of materials ejected from below. But the cause or causes of volcanic action are not yet definitely known. There is similar general agreement as to the mode of formation of laccolith mountains, and when geologists have finally determined the causes of volcanic activity, the source and origin of laccoliths and all igneous intrusions will be ascertained at the same time. With regard to another class of deformation mountains there is a like unanimity of opinion; it is admitted that dislocation mountains owe their origin to unequal subsidence of the crust along lines of fracture. But when we come to the question of the origin of folded mountains we have several explanations to choose from. All admit that the structure of those mountains is the result of lateral compression, but the cause of compression has been a fruitful source of discussion and controversy. I have tried to explain the several theories of mountain making by compression, and have shown that the only one which appears to explain all the phenomena of folded mountains in a reasonable way is the contraction theory. So far as I know there is no geological evidence that tells against it. The only serious objections which have been raised come from physicists; and if it be true, as some insist, that the level-of-no-strain lies at a depth of not more than five miles or so from the surface, then the contraction theory must fail. It cannot be denied, however, that their conception of the conditions that obtain in the crust below

us is based upon assumptions which may not be true. One might even go further and maintain the position that the physical theory of the evolution of our earth from a white-hot liquid should not be accepted as beyond question, if it cannot explain the geological evidence. It has been definitely ascertained that masses of strata reaching from five to ten miles in thickness have been crumpled up and so compressed as to have lost in some cases thirty, in other cases seventy miles or more of their former superficial width. If such an amount of compression be inconsistent with the conception of a globe which has cooled down from a white-hot molten condition, then that conception must be erroneous. There is apparently no efficient cause of crustal contraction save that of secular cooling to which we can turn for an explanation of the phenomena of our folded mountains. At a very early geological period the crust was thick enough and the contraction sufficiently great for all the purposes of mountain making, and we know that rock folding and horizontal displacement on the most extensive scale, have been repeated at intervals down to a relatively recent geological period. It would seem, then, that physicists must either show us that these facts are quite consistent with their theory of the age and origin of the earth, or provide us with another conception that shall be more in harmony with the definitely ascertained results of geological inquiry.

All tectonic mountains have suffered erosion. In common with every portion of a land surface they are necessarily subject to the attacks of the various agents of change. Thus in time all traces of their original form may become obliterated. Obviously it is the youngest mountains which have suffered least disfiguration. In a growing volcano the rate of accumulation exceeds the rate of decay and consequently the form characteristic of that class of mountains is maintained; for it is due simply to the mode of growth. But when volcanic action ceases the configuration soon becomes modified; the beautiful symmetry of the original cone is gradually destroyed, and eventually the whole structure may be levelled. And so it is with deformation .

mountains: they, too, pass through successive stages and tend finally to vanish away. We cannot tell what aspect a typical range of folded mountains presented at the time of its uplift. It is not at all probable, however, that the external form agreed so closely with the internal structure as in the case of volcanoes. The growth of the latter is relatively rapid, but that of the former, we have reason to believe, was extremely protracted. It may be inferred, therefore, that long before ranges of folded mountains had reached their greatest elevation, they had already become modified by denudation to such an extent that configuration and geological structure would seldom coincide save in a very general way. What we do certainly know is that there is a nearer approach to such coincidence in the younger than in the older mountain-ranges. The latter as a matter of fact have been almost entirely remodelled, so that not infrequently heights coincide with synclinal troughs and valleys with anticlinal ridges.

Dislocation mountains have a somewhat similar history. Those of recent age show at a glance that, despite the denudation they have experienced, their form obviously corresponds more or less closely with their geological structure. The older mountains of this class, however, exhibit softer contours and their geological structure is not so evident in their form. And the same remark applies with equal truth to laccolith mountains. In a word, all deformation mountains depart more and more from their original configuration with advancing years. They all alike tend to decay and dissolution. The sites of vanished tectonic mountains of every kind are well known, some of them being traceable in low-lying plains, others in elevated plateaus.

Should a land, which by long continued erosion has been reduced to the condition of a plain, be reëlevated and converted into a plateau, it once more becomes a theatre for the display of epigene action. Gradually valleys are hollowed out, and with the progressive development of the hydrographical system, the plateau in time is cut up into mountains. The disposition and form of these heights are determined mainly by the character of the rocks and their geological structure. Hence a plateau of

horizontal strata becomes resolved into a series of pyramidal and table-shaped mountains. When the strata, instead of being horizontal, are inclined in some definite direction, they give rise to ranges of escarpment mountains,—the form and position of which vary with the character of the rocks, and the angle and trend of the dip. But should the plateau consist of closely folded and contorted strata,—should it, in other words, represent an ancient chain of tectonic mountains, worn down to base-level in the first place and afterwards reëlevated *en masse*,—then, under the influence of erosion, such a plateau becomes in time carved into a rolling mountain land, which in its general aspect must reproduce all the appearances presented by a highly denuded chain of tectonic mountains. So far as the relation between external form and internal structure is concerned, therefore, relict mountains of the kind just referred to cannot be distinguished from folded mountains of great geological antiquity. Both consist of similar rocks similarly arranged, and in neither does configuration coincide with the structure.

Thus, as the final result of geological research, we are led to the position so long ago maintained by Hutton and his followers. Howsoever mountains may differ as regards their origin,—whether as in the case of tectonic mountains, they be the result of volcanic action, or of crustal deformation; or whether, as in the case of relict mountains, they are the surviving fragments of ancient plateaus,—they all alike owe their present configuration in less or greater degree to the operation of those superficial agents of change which are everywhere and always striving to reduce the land to sea-level.

NATIONAL EXPRESSION IN AMERICAN ART

WILL H. LOW, *New York.*



THE closing year of the century has seen gathered within the walls of the new Palace of Fine Arts at the Paris Exhibition the most notable collection of works of art, which the world has ever witnessed. Most notable, at least, in point of numbers and in diversity of the countries represented; eager to respond to the invitation of France, who has exerted for the last hundred years every effort not only to stimulate the production of her own artists, but to stand as protector of the arts, ready to encourage and reward with honors the artists of the entire world.

Nor has this encouragement been allotted alone to the master-workman; the art schools of France have welcomed the neophyte, whatever his nationality, and to a large number of the exhibitors in the section of Fine Arts at the Universal Exposition it was a return to Alma Mater to exhibit there. The universality of French art education entails, therefore, throughout the various sections, a certain uniformity of presentation, as though the art world spoke French, the difference of accent alone betraying the country of origin; and the distinctions which in former times gave character to the varying schools of art have well nigh disappeared. Owing to their mutual isolation, it was possible in the fifteenth century for Florence and Venice to be further apart in an art sense than are to-day New York and Buda Pesth.

In this vast, cosmopolitan family of art, the section of the United States, the child of yesterday, has been given a man's

share of the honors bestowed ; and though our representation was far from complete, for reasons to be noted later, the progress which we have made in the last twenty years, and the prospects of the immediate future would seem to indicate that in art, as in other directions, the march of empire tends westward.

In the hurry and bustle of our daily life, in the state of surprise where rapidly occurring events cause us to dwell, we are apt to forget that while the scenes shift, the action of the drama remains based on tradition, and our young Republic is simply repeating the history of the world, and will take its place in art in obedience to the same natural laws, and in the evolutionary order that governed the birth, the growth, and, later, the decadence of the arts in Greece. It is not necessary here to attempt to prove so trite an assertion, nor to follow step by step the pathway of art in its western progression.

It will suffice to note the fact that art in the old world has arrived at its maturity in certain directions and that further advance is difficult. It is evident to a student in this Exposition that, in so far as Europe is concerned, art is at the summit of technical achievement, and that the task before it is not to establish but to reconstruct. In the ten years that have elapsed since the exhibition of 1889, no notable technical progress has been made ; and, virtually, no new man has appeared, to invent and impose new features of advance in that direction. A great future still lies before Europe in the direction of sentiment and taste ; much that has been done in the decoration of public edifices, for instance, could be reconsidered with advantage, and, as was so often the case in the Italy of the renaissance, new work of a more chastened taste, more in conformity with its surroundings, with greater harmony in its several features, and of more significance of subject, could be made to take the place of some of the more recent decoration.

In a word, the artists of Europe having at their command a method of expression, perhaps more perfect than any the world has heretofore known, have yet to learn to use it to express to the modern world all that art in the past meant for their predecessors in the great human family.

To a degree, our art has the same merits and the same fault; only to a degree, however, for it would be hazardous to claim for the American artist the same excellence of technical expression as that of his European, and we must not forget, his elder brother. It is, indeed, only our new world faculty of beginning where others leave off that has endowed our nascent school with its very high degree of proficiency in handling the tools of its craft.

But our public, as yet very largely indifferent to (when not altogether ignorant of), the importance of art as a factor of civilization, has no such standard as that of Europe by which to judge the artist, and to exact from the probationer a knowledge of his tools before he is allowed to practice.

For if the art of the painter or sculptor has as its final intention the conveyance of a thought, it is also of its essence that it is a skilled craft. Inasmuch as the skill required is not, like that of the mechanical arts, one which can be mathematically measured, there is room for wide divergence of individual opinion in the matter of its judgment. Consequently, while our country possesses, in considerable number, men capable of reasoned and reasonable criticism, it is not enough to establish that standard of judgment with which centuries of interest in art, permeating every walk in life, has endowed Europe.

Hence it is common with us that the desire of expression unaccompanied by executive ability not only finds tolerance but ill-judged encouragement. The honors received by our men in Paris, however, are not open to this reproach. Though the technical standard of our work was not as high as the best of other sections, with the possible exception of one of our painters, it was sufficient; while the temperamental, artistic qualities of our men were beyond question.

It may be judicious, nevertheless, to qualify our satisfaction with a recognition of the fact that our European judges are satiated with mere excellence of workmanship, and are inclined to generously encourage possible indications of artistic perception with tendencies foreign to their own.

I say possible, as an expression of hope, for it would augur

favorably for our future if the international jury found in our work strong national characteristics. But in comparison with nations favored by art interest, long established and firmly rooted in the habits of the people, it would be folly to carry patriotism so far as to claim that we have a distinct school. To continue the simile already employed, art is a foreign language which we speak with fluency and expression; but we still lack a method of expression which is unmistakably our own.

Except in so far as technical considerations extend, in which direction we will undoubtedly share in whatever progress the future may hold, it is a question whether a civilization like ours, made up of a fusion of such cosmopolitan elements, will ever have a voice which will be geographically local and national. For, situated on the nether side of the Atlantic, we receive with equal impartiality the gifts of the cradle lands of the Arts; and in making them our own, despite the common reproach of irreverence, we have as yet respected their identity.

This is so true that we are to-day the surviving depository of the classic spirit in Architecture, which Europe under the banner of *l'Art Nouveau* affects to treat in iconoclastic spirit. Again, in France the great majority of the artists and critics clamor for the abolition of the Roman school, which for two hundred years they have maintained; and this decade has seen for us, on a small scale, due to private encouragement to be sure, the establishment in Rome of a school of similar aims.

Sweden and Norway in the north and England, separated by a small arm of the sea from the rest of Europe, have a more obvious, if superficial, national character in their art, and are far more removed from the influence of the classic spirit, which France inherited from Italy, than we who, geographically, are so far removed.

The local in art is not, however, always the characteristic, and has a certain analogy to dialect in comparison to language in these cases. The English, it is true, have a tradition of their own derived from the same sources as that of the Latin races; but, for what seems to the writer the very sufficient fact, that art

in England has from the first concerned itself with the unrelated easel picture destined to private possession, an apanage of the rich and consequently a luxury, it may be truly said that art has never penetrated deeply into the hearts of their people.

With Sweden and Norway the case is different. The Scandinavian races in general seem to emerge from the fog land of northern mythology to veneer their barbarism with the culture of the Franks; and their tradition hardly reaches back to the eighteenth century, and ignores the historic affiliations of the formative period. They have apparently adopted, ready-made, the point of view which has so strongly prevailed in modern France, and, more royalist than the king, have applied the doctrine of realism to the letter. But if this doctrine is to-day cried from the housetops in Latin countries, it must not be forgotten that, for centuries, they have enjoyed the benefit of classic tradition. The influence of the Institute, reflected through the instruction in the schools, is still weighted with the yoke imposed by David, who closed his eyes to the world about him and had as his motto, "Look into your Plutarch, and paint." Undoubtedly there has resulted from this a somewhat dead classicism and it is against this tendency, which has, however, served as a constant corrective, that the French realistic school has revolted. The effect of limiting the powers of the artist to a rendition of existing things, and forbidding him to choose and employ the suggestions of nature in works of imagination, has its due result in the art of the Scandinavians. With the facility of a thoroughly acquired workmanship, the whole northern school voluntarily limits itself to the contemplation of the commonplace.

If this was art, if art had as its chief function the perpetuation of local types and changing customs, the artist who, inspired by nature, sculptured the gods of Greece, or he who painted a world within the Sistine Chapel, or the later man who, yesterday, evoked the patron saint of Paris on the walls of the Pantheon would have no right of existence. Happily this is not so; and the artist who, with the skill of his craft is able to lift our poor humanity from the level where we plod, will always appeal to

that large, human sympathy, which is the court of last resort to all thinking men.

We, of the West, have many elements in our composition; the Anglo-Saxon predominates, but the Teuton and even the Scandinavian is to be counted with. So far, however,—though our Gallic cousins, themselves but a small fraction Latin, in the heat of economic discussion, dub us “merchants of pork,” and refuse us our share in the common heritage of art,—our painting and sculpture are strongly tinged by classic tradition. It remains with us, therefore, to make of this influence another link in the long chain which brings art from Greece through Italy and France to shore on our western hemisphere.

Though Byzantium is for us but a name, we can graft on the art which we have received in this century, almost in this generation from France, as living and fruitful a blossom as that which Giotto in Italy forced to bloom on the moribund root of Byzantine art.

To leave out of consideration the tentative efforts of our artists constantly growing in numbers and power since the first establishment of the Republic, and to consider the section of the United States at the late universal exposition only as an indication of the manner in which we have learned to solve the technical problems of art, there remains resident in our possibilities that, which it is not optimistic to term the greatest future for art that any country possesses to-day. For we have unlimited pride in and hope for our country, abundant wealth and prospect of its continuance, and a field which is, virtually, virgin.

It is under these conditions that art comes to us as, since its birth, it has come to the nations in their first maturity. It is not of the art of which England, since British wealth attracted Holbein and Van Dyck to their shore, has had a profusion; but the more essential, normal art which owes its existence to its use as a symbol of national glory; it is the art which is the favored child of Architecture, long since named the Mother of Arts.

Except for the gallant struggle which since the time of their revolution France has never ceased to make in the interest of an

art which has another function than to merely please, the artist has fallen from the high estate where religion, and the princes who nominally served her, had placed him. Nor is it possible, even if we agree that the world to-day follows the precepts of the Man of Nazareth more truly than in those times, for religion to again revivify art. The masses of mankind will never again flock to our churches to spell out with devout attention the pictured message on the painted wall, which in the earlier church served for the Bible of the poor.

But civic belief, though we halt and stumble as we follow its progress, is still marching on; and with the way open before us, with no vestige of thrones destroyed nor old world systems to impede us the mistakes of to-day, which we can correct to-morrow, can hardly prevent our ultimate success. In the past it has always been a nation growing like our own that has seen art arrive, and the conditions only are new with us. The first steps to make our inheritance good were taken, it is true hardly more than a generation ago, but they were in strict accordance with tradition.

In the settlement of a new country all the powers of the people are first given to wrest their sustenance from the land. This once accomplished the rude habitations, which served while the forests were felled, the land ploughed, and the crops planted, give way to dwellings which are more than mere shelters. This was the case in our country. I have heard the late Richard Morris Hunt state that when, at the close of the Civil War, he returned from his studies in Paris the trained architect was almost unknown in our greatest city. Before that time, save a few men, foreigners on our shores or self-trained architects of native birth, the builder with his text-books gave us artless versions of buildings of the older world which sufficed for our needs.

From our five years of internecine strife was born a nation; and the country, realizing for the first time its young maturity, convoked, ten years later, the other nations of the world to an international exhibition to celebrate the centennial anniversary of the establishment of the Republic. If our architects were few at

that time they are many now, and the comparison between the buildings at Philadelphia, in 1876, and those at Chicago, in 1893, suffices to show the work which they had done and the progress of their art in the interval.

This is not the place, nor would I assume the task, of a critical review of the vast amount of building, which has given the American architect an opportunity such as has hardly been vouchsafed to any artist since time began. From the Atlantic seaboard to the remotest confines of the West he has been busily employed. The concrete character of his art, the evident and estimable quantity of iron, stone, brick, and mortar, with which he works, has appealed to our practical people; as the huge palaces which they reared appealed to the merchants of Florence and Venice when they, in their turn in its western march, received the inheritance of art. And, as in the old world, it was not alone in the private habitations which they reared, where they and their families could enjoy the comforts and luxuries fairly due to their hard won wealth, that this new-old art did service. The long-headed man of business reasoned, and reasoned well, that if he was lodged in comfort and magnificence, his shop, his corporation, or his company as the instrument of his success was also entitled to the outward and visible signs of prosperity.

And according to their lights the architects at the instigation of the man of affairs went to work to make our cities beautiful. So far, this (which it is hardly an exaggeration to call a renaissance of architecture) had been done at the dictation of private enterprise. But the day came when the public purse was opened and buildings,—often more costly than beautiful but for that reason more representative of the transitional period of our civilization,—were erected throughout our broad land to serve the purposes of our federal and state governments. Thus have risen, and are rising, in all parts of our country, city halls, court buildings, and public libraries, some of them good and others indifferent, but all tending to a fuller recognition of the service which art can render the Republic,—all cognizant of honest pride in our country and in its institutions.

With the growth of the architect in the old world, grew his compeers in sculpture and painting; and like conditions have produced the same results with us.

I have already said that the art section of the United States was not characteristically comprehensive. It is impossible to show upon the walls of the ordinary gallery specimens of work which depends upon its fitness for a special place for which it was executed; and our stained glass, perhaps our most notable contribution to modern art, was but meagrely represented and our mural painting not at all.

Hence our representation was limited to painting and sculpture complete within themselves. Here we touch upon the fundamental distinction to be made between the unrelated easel picture or the detached statue, and those which exist for their utility as related parts of a comprehensive whole,—a class which we know as decorative art. The world has seen many great easel pictures, many single statues and groups full of import to humanity; but with the thought of many such strong in my memory, I am constrained to believe that the truly great art of the past and that of the future depends on that intermarriage of beauty and use, which alone exists in decorative art.

The unrelated, detachable work of art is a comparatively modern product born since the days when art was truly great in significance and influence. It sins too frequently by a desire to please at all hazards and by the facility by which it can be made an article of barter to be classed with jewels, mere luxuries.

It has thus given rise to the trafficker in works of art, the man who, on the one hand, stifles the independence of the artist; and, on the other, by the jugglery of commerce, makes of that which by right belongs to the world an object of exclusive possession. The artist loses dignity in this prostitution of his work and often enough, dazzled by the fictitious value given to his product, loses the old simplicity of the workman who espouses his art as St. Francis espoused poverty, content in the possibility of continuance of production and the esteem of his fellow citizens.

The expression of this thought should not be taxed with sentimentality, for the history of art is full of instances of men, like those of to-day, of very much the same virtues and faults, who have made of their art a sacred calling; and my craft can and does still honor many such in more recent times.

But the evident fault of the unrelated work of art undoubtedly lies in its appeal to a special and limited class, which has given it the bad name of a luxury, and the facility with which it can be made to reflect a fugitive and trivial mood, as it exists only for itself. This is seldom or never the case with a work of decorative art if it at all fulfills its conditions as such. If it be of even the minor forms it is part of and enhances the value of the object decorated, as the pattern on a piece of silk becomes inherently a part of the fabric. If of larger import it, again, exists as a part of the whole and shares its merits.

In its larger scope it has for the modern artist the advantages which made his predecessor,—as a worthy companion of the recognized crafts of utility, of the carpenter, mason, cabinet-maker, and builder,—honored among men.

As his work forms an integral part of a building, presumably destined to remain, triviality of subject, conception, or execution is debarred. If it is in a public place it does not depend for appreciation on the restricted few that frequent special art exhibitions; for the people intent on their affairs will cast a passing glance, and he who runs may read the message which the artist's mind has conceived, and judge the measure in which his hand has conveyed it. A part of the nobility which from the time of the Pyramids attaches itself to solid construction, is shared by the work which decorates wall or pediment. Again, the work as conceived for its special surroundings is not liable to change of place, the light for which it was executed remains constant, and the dignity of its environment enhances its grace. Finally, the artist working with this aim is not led astray by mere virtuosity; he is not tempted to hide grave faults under facile felicities of execution; and in the measure that he is enfranchised from the necessities of realistic rendering, his attention can be given more

wholly to the intention of his work and it will grow in dignity and sentiment.

The decorator, in a word, works for the world; his production, no longer conceived for the stifling atmosphere of the studio or gallery, breathes the open air; and art, instead of being as it is too often a thing apart, becomes a portion of our daily life.

The artist no longer an exotic flower, exhaling a faint perfume of personality like a priceless orchid, blooms in the sun which shines for all; and takes on a robust joyousness which, as we read the lives of the old painters, strikes us as the characteristic note of the best days of art.

In fact, if we contrast the live citizen of Flanders, Peter Paul Rubens, signalled by abundant and healthy production, mixing in the world of his day, interested in all that went on around him, with the life of a recluse like the English painter, Rossetti, painfully extracting drop by drop his very life blood in a few easel pictures, works of morbid sensibility appealing to a precious and limited taste, we feel in the latter a taint of decadence.

On the contrary, the man, Paul Veronese, not only prolific in works eminently sane of his own execution, was the master of pupils who, in his shop (to literally translate the Italian *bottega*), produced works, which to-day we confound with his own; prodigal of beauty and spreading abroad the gospel of art which his fellows in the market-place, busy with their material interests, yet found time to absorb. It is an art like this which we may have if our artists will but take heed and bend all their efforts to accomplish it.

We already have the battle partly won, for unconsciously the heaven has been working for years. Who can estimate the appreciation of art which has grown through the perfecting of processes of reproduction in our magazines? We smile kindly at the profusion of color and design to which the poster has accustomed us. We have goods to sell, and we believe in a wide publicity, and the illustrated advertisement has enlisted the services of capable men, who have drawn more wisely than they knew; for each and all of these elements have entered into our

national life and have grown to be a force. The decoration of a public monument like the Congressional Library at Washington was rendered possible, to a large degree, by the slow infiltration of the art idea through these humbler means. And, though a remnant of tradition prompts one to qualify the means as humble, are they really so? Is the artist who is capable to arrest the citizen on his way to work, by an assemblage of form and color in a poster, and give him a vision which radiates through his hum-drum day, inferior to him who, within a frame in an exhibition, shows a work whose chief interest lies in the manner in which it is painted, which, having achieved, the artist in Europe petitions his government to buy, which at home, the exhibition over, he generally adds to his private collection of his own works—and turns, to earn an honest living, to teaching or illustration?

For if our artists, so far in our brief art history, have found a wide circle, (thanks to the reproductive methods), and have produced works which have interested our public, it is, on the other hand, an open secret that for the past decade our exhibitions of painting and sculpture have had a constantly diminishing attendance. This is due, paradoxical as it may seem, to the fact that our exhibitions are too artistic, using the word in its limited sense. They are not unlike trade school exhibits, attractive only to a restricted class interested in the technical side of art.

There are reasons for this, reasons which to a practicing artist tend to excite a feeling of admiration for his fellows, who with one mind have maintained that they must first of all, even at the sacrifice of the interest which subject and sentiment lend, acquire a mastery of their tools. So, for the time, the ultimate object of a work of art has been put aside, and it yet remains to be seen if, the technical means at hand, we are capable of adding these other qualities and using them to impress our public.

Meanwhile the illustrator and the designer of posters, possibly taking himself less seriously, though in point of fact our best men have lent their talent to these so-called minor works, have found their public.

And in due course the mural painter and the decorative sculp-

tor have, through the alliance of their arts to utilitarian purposes, so impressed their more appreciated brother, the architect, that he has called in their aid to adorn and complete his work. Here our artists have found their opportunity to express in its fullest sense and under the most dignified conditions their message to their time and their people, and, as much has been granted them, much may be demanded.

Let me hasten to say, in palliation of certain criticisms to be made later, that with a tolerably complete knowledge of modern decorative work in the public buildings in Paris, Rome, Vienna, and Berlin, it appears to the writer that our contribution to modern decorative art is astonishingly good. With the proverbial rapidity of our country, we have accomplished much within ten years in quantity of decoration; and that its quality should be so good was hardly to be expected.

The European painter, though he may habitually exercise his talents within the confines of a small space, has, nevertheless, had before him the abiding possibility that his city or state government might call upon him for work of larger scope. In France the annual Salon has kept the painters exercised, in obedience to the idea that to make an impression a huge canvas is necessary; and consequently the French painter is generally equipped to execute large work and this is measurably true of the European painter in general. But at home the small cabinet picture enforced by the exiguity of our houses, or the space of a magazine page had limited the size of our efforts and there was little reason to believe that our men were prepared to affront large wall spaces.

In fact, and here undoubtedly lies the reason for comparative failure in some cases, the average American artist had never considered the possibility of having in his own country, large decorative works adorning public buildings. I well remember twenty years ago being treated as a Utopian dreamer by my student comrades for timidly expressing a belief that our art would follow tradition and of necessity tend in that direction. But, though taken unawares, our artists with national ingenuity set about conquering the new field spread before them.

Stress has been laid upon our indebtedness to Europe for our technical methods, and, therefore, it is but natural that in our first efforts in decoration our men should return to their academical training, and in superficial aspect repeat the lessons which existing decorative work afforded them in the countries where they had studied.

In an early and isolated instance of American decorative work,—the panels executed by William M. Hunt in the Capitol at Albany, N. Y.,—the artist was diverted from his natural methods, the fruit of a lifetime of study, by the novelty of his task, with the result that his completed work bore a strong impress of Thomas Couture, who had been his first master; and it is small wonder that much younger and less experienced men should have been likewise influenced. Hence the public buildings which our men have decorated appear to be devoid of national expression, and it is regrettable to find, in Washington or New York, themes and methods similar and equally appropriate to Paris or Brussels. To those of our men, rather the majority, to whom this new avenue of expression was opened, who had never studied nor essayed work of a decorative character, there were naturally vast fields of work done in earlier times than ours which they ignored. There were also many and varying conditions inherent to decorative work, which they were called upon to consider for the first time.

The painter of easel pictures, it has been said, has only to keep in mind the effect of his isolated work, unless perchance he considers, generally in a most unchristian spirit, the possible effect which neighboring pictures may have upon his own on our crowded exhibition walls.

The decorative painter must respect and consider the architect's work, must not by line or color detract from the constructive features of the room where his decoration is placed, must study the effect so that his work can be seen at the proper distance, and must not allow the scale of his figures or objects represented to conflict with the scale of mouldings, capitals, or modelled ornamental work. He must adopt a tone in harmony with the

general color of the room and in consonance with the degree of light which falls upon his work; and, finally, his composition must be simplified so that its meaning is apparent at the first glance, a painted rebus difficult of comprehension being abhorred of the gods—the architects in this case. Here are a few of the considerations which affront the neophyte whose thoughts have heretofore been occupied with small pictures or the necessities of the magazine page.

Therefore, our comparative success is matter for congratulation; and that virtually untried men did what they did in Chicago in 1893, and have profited by what was learned there, to do what has since been done in the Congressional Library at Washington, or the Appellate Court in New York is worthy of high praise and, even more, hopeful augury for the future.

In all that has been done and for future work there are, however, certain restrictions to note and certain technical problems to consider if we would hope to make our decoration consistently allied to architecture and truly national in expression.

Upon the technical side the aid of the architect to complete the work which he has begun is necessary. It too often happens that the painter or sculptor is called upon to place his work in surroundings for which he shares no responsibility. Our architects are busy men, obliged as a rule to depend upon a subdivision of their labor in order to get it accomplished; and before the artist-decorator made his entrance upon the scene, the contractor-decorator occupied the ground, and took upon himself the task of carrying out the architect's scheme of decoration. He is still too often called upon to furnish the general color scheme or the modelled ornamental work which the artist-painter or sculptor should either do himself or control absolutely.

The consequence is that frequently in a decoration which should bear the impress of one hand, there are two or more and as, by the conditions of haste under which our buildings are erected, the artist's work is seldom or never done in place, he is liable to find that, while he has been given a general idea of what the color or style and scale of ornament is to be, the work as executed is

either different from the samples which he has seen or from the idea which he has conceived.

This could be obviated by placing the entire decoration of a room under the artist-decorator's control. It would, of course, necessitate, on the part of the artist, technical knowledge of ornament and general decoration, which few of our men have as yet. But this special knowledge can be acquired, and its acquisition would bring the artist a step nearer the master-architect, who in the end is responsible for the entire building.

The knowledge of ornament, the capacity to execute even a simple border around a decorative panel, is unfortunately rare in the ranks of our newly recruited decorators, and insistence upon, at least, an elementary knowledge of the connecting links between painting and architecture would serve to eliminate the men whose interests are purely pictorial, and whose presence so far is due to the novelty of the task, whose contribution to decoration would always remain isolated from its environment.

This amelioration of system would require, on the other hand, that the architect should give more personal attention, more time and study, to the decorative side of his work; he would be obliged to come a step nearer the artist and consider questions of color, and harmony of effect, as few of them do at present. Such conditions must inevitably prevail if decoration is to do for our art all that its present aspect seems to promise, for it is only by a series of happy accidents that the most deplorable results have been avoided. Yet it is but fair to say that we have done about as well as our contemporaries in Europe, as witness the City Hall in Paris, or the New Gallery of Fine Arts in Vienna. In both of these buildings the employment of artists of widely varying aims, their work often in close juxtaposition, results in an entire lack of harmony, and individual panels, often admirable in themselves, are rendered ineffective by their environment. This is true of the Congressional Library at Washington, but to a lesser degree as each room is there given in so far as the pictorial decoration is concerned to a single artist. Opportunity was also given to each man to know what the surroundings of his work were to

be, but greater harmony would undoubtedly have been attained had the power of modification or entire control of the color scheme of the room been given to one artist.

There are many technical considerations, too many to be touched upon here, which must be left for our native intelligence to meet and provide for, as our critical sense is developed and the distinction between the decorator *per se*, and his equally estimable fellow, the artist of isolated production, is made through trial and experience.

One crucial test yet remains, however, before we can count the new interest in decorative art as a permanent accretion to our native and national artistic wealth. Our artists must make haste to prove that with the newly acquired means of speech they have something to say of vital interest to our public.

So far, in the maze of newly required technical qualities through which they have struggled, it is, perhaps, but natural that their utterance has been less than vernacular. The crowds who work within or come as visitors to the public buildings which our new decorators have adorned are not critical; and for the nonce are willing to accept the work therein with admiration for its charm of color and line; in which the surprise of seeing, for the first time and on our soil, buildings which through the alliance of the arts are *complete*, counts for much.

But is this likely to be of long duration? For the artist in this new work has no longer to deal with the collector, whose own education leads him to an appreciation of art akin to that of the artist. He has or will have to paint for the great public. He must meet with the man whose hand is at the outlet of the public purse, and must prove to him and to the tax-paying masses behind him, that his art is a force which the wise legislator can employ. He must convince bank presidents that public confidence in the security of deposits will be stimulated by the presentation of fundamental truths upon their walls. He must show hard-headed business men that their various enterprises can be so pictured that the public of whom they seek support will understand at a glance the advantages which they offer.

All this has little to do with art as we have known art in these latter days, but much as art was in the day when it spoke to humanity at large. And this universal speech it must once more acquire if it would be a vital force.

The painters,—here let me use the personal pronoun,—we painters must leave the commonplace and the trite; we must learn to distinguish in the complex and cosmopolitan civilization, where we find ourselves, the essential qualities which are at once pictorial and national. The writer can hardly be accused of partiality for the modern costume in art or the representation of the ordinary daily life, which surrounds us; which is nearly always more local than typical (subject to change so that the actuality of to-day becomes the historical event of to-morrow), and lacks pictorially the dignity of history more remote. But though in critical fairness I cannot recall an essentially decorative representation of modern life in the setting of architecture, which always reflects a distinct and historic style; yet it is theoretically possible, and the locomotive and the trolley car may well be decorative motives of the future. But in addition to these ultra and obvious subjects we have the larger elements of earth, air, and water, which, while common to the whole world of speech, intelligible to all humanity, take on, in our latitudes, a character proper to our own country. Out of our cosmopolitan population there has already been evolved a type of American woman, unmistakably our own; and, while our typical man seems to be still, pictorially, in process of evolution, we have in our logging camps, on our fishing smacks and canal-boats, and even in our fields and workshops, types which are recognizably national. We have as backgrounds for these figures, or for allegorical figures which shall retain a flavor of our soil, a landscape which is as varied and as beautiful as that of any land.

For the old world, at least, where Cooper and Chateaubriand are not forgotten words, we have a pictorial element which Europe lacks; and if we can overcome our repulsion for the red man of our frontier agencies—a creature of our own creation—we can find in the old life of our forests and in the mythology of

our native Americans, subjects more near to us than the echoes of another and foreign mythology. Our South, the bayous and the everglades, the cane-brakes and the cotton-fields ; the West with its wheat-fields and mines, the romance of bread and of gold ; all of these, realistically treated or translated through the imagination of the artist into the figurative language often stronger than direct speech, are themes which we may treat, the words of the vernacular which we must speak to our people, who—never fear—will listen and understand. Not that we should be debarred from the pride of long descent and limited to subject indigenous to our soil ; for the past is ours by heritage, and we can, like Molière, recover our belongings wherever we find them ; but the complacent acceptance of threadbare allegory or conveyance of ready-made solutions of problems, which we should solve for ourselves, should no longer prevail.

Let me conclude with a suggestion of a practical character, a suggestion so obvious that it may already have been considered by those in authority, and a satisfactory decision reached in the instances which I will cite.

Among the many buildings of public character in course of erection in the United States, are two of widely different intention which might and,—here I speak without a vestige of authority,—may very probably seek their completion by means of the allied arts.

One of these is a library, music hall, and art gallery in one of our most important centres of labor. The building partially completed some years ago but now receiving additions, which will double its capacity and make it virtually a new structure, has been the theatre of one of the most interesting experiments of modern times. It has sought to bring into the lives of the citizens, almost exclusively engrossed in mechanical industries, the saving grace of Art, Music, and Literature. This, in a more or less purposeless manner, is the attempt of every such building, and they are many, throughout the country ; but the work here has been attempted on a most generous scale and no means of influence or money has been spared. At its inception, by one of

those wise and generous private benefactions, which makes us think well of humanity, it became a property of the city, which is required to lend its interest by a share in its maintenance. In this city begrimed with the smoke of its many factories, there has been held a series of exhibitions of pictures of first importance gathered together from home and abroad by the energy and unsparing efforts of the directors of the gallery. Music of the first order, lectures bringing the treasures of thought and research, and the constant access to the comprehensive library, together with courses of instruction in all fields of knowledge, have made of this building a powerful engine of good in a city of machinery. For all this is for the benefit of the workers of the city, and it has grown so into the city's life that its enlargement became necessary and is now in course of achievement.

The second building or series of buildings are to further the purposes of one of our great universities, and comprise along with dormitories and offices an auditorium and a dining-hall for the students.

It would seem that no public edifices were more adapted to the intelligent service of the decorative artist than these, for though differing widely they both seek to educate.

And where better than on the walls of the new library, in the city of forges, could art be employed to supplement the effect made by the annual exhibitions? Where could the pictorial explanation of the benefits derived from Art, Music, and Literature be more clearly read; and, indeed, instead of the periodic and partial exposition of works of art, a permanent and significant presentation could be had.

Nowhere better than, perhaps, in the new halls of the university, where in the daily life of the students, impressionable as is the privilege of youth, the constant reiteration of noble thoughts nobly expressed would inevitably convey a noble lesson.

But whether these buildings are to be considered or not, it would be well, when next we undertake the decoration of a great public building, to create a committee of men of various minds to draw up a general scheme of decoration. Some such effort was

made in the case of the new Appellate Court in the city of New York, but apparently the technical side was alone considered. This, of course, should be paramount, but the selection of theme should also be very fully considered in order that, when finished, the building from its entrance door through the succeeding rooms would carry out one idea proper to the function of the structure. On such a committee, our educators, men of letters, and the plain citizen, who is to help bear the expense and move and have his being in the future halls, should be represented together with the architect and artist.

Under such conditions it would be possible to evolve a scheme which, while it would create a limitation for each individual artist, would greatly enhance the meaning of their work as a whole. It would not be too much to ask, for the sake of the experiment, that an ordered and consecutive subject should be chosen of which each work should show a phase, and the commonplaces, which have served for so long a period that they are no longer vital, the tiresome and obvious symbols of Science, Art, Justice, Philosophy, the Muses, and the Graces,—the whole heathen pack of Jupiter, Mercury, and Mars, should be debared.

We should thus escape, at least, the repetition of the same subject, which lack of forethought and concerted scheme has allowed to appear in some of the decoration already achieved; and as each man would be free to interpret his subject only within the limitation imposed, each work would help the significance of the others.

So simple a plan could be easily tried and as a result it is possible that the artist, who is not yet an integral part of our national life, who in a sense has thus far cried aloud in the wilderness, would find that his voice was heard, that the intelligent, thinking man would listen, and would understand that art had a message for him and for his kind.

With this conviction secure in the hearts of our people the future of our art is assured, for wealth, patriotism, and unbounded opportunity already exist, waiting for the artist who can use his newly acquired mastery of his craft in themes so truly significant as to constitute a national expression in American art.

THE SITUATION OF FRANCE IN INTERNATIONAL COMMERCE

ANDRÉ LEBON, *Paris.*



THE Universal Exposition has just closed its doors; it was brilliant and magnificent, and worthily marked the end of an economical century, which has been revolutionized by the discovery of steam and modern machinery, and which has beheld at its decline the birth of electricity; it has revealed to the most ignorant the marvelous industrial and commercial ability of nations which were destined, as we little dreamed less than thirty years ago, to become powerful producers and skilful merchants. Now that the admirable decorations of the Exposition have fallen under the strokes of the destroying axe, the time has come to detach its general teachings. It is but natural that this study should begin with France, who organized this incomparable survey of the present economic forces of the whole universe. What is the actual position, then, that France holds in an international competition? what are the peculiar conditions under which she must face this struggle? and, finally, what are her prospects for the future? The answer to these questions forms the object of the following pages.

But a preliminary remark forces itself upon one who pretends to compare the present with the past. The loss of Alsace-Lorraine, in 1870, was not merely a cause for the political impairing of France, and, as we shall see later, an occasion of exorbitant financial burdens, but it has also profoundly changed the essential terms of the problem which then presented itself,

by taking from her one of her most active means of production. Every one knows that Alsace-Lorraine takes the greater part of the cotton consumed in Germany, that her woollen industry is not to be despised, and that metallurgy, in all its branches, occupies an important place. But mixed in with the general statistics of the external commerce of the empire, the importation and exportation of Alsace-Lorraine cannot be subtracted from these. What would be the economic situation of France to-day, if to her own commerce were added that of those provinces lost in 1870? No one can figure this exactly; nor can it be disputed that the sum total registered by the custom-house would be considerably augmented thereby.

This is one way of making known the actual facts. In 1869, the external commerce of France,—a deduction being made for the merchandise in bond, in temporary admission, and in transit,—yielded 3,153 million francs for importation and 3,075 millions for exportation; in 1899, the importation was increased to 4,217 millions and the exportation to 3,899 millions. But if we take into consideration, on one hand, the territorial reduction mentioned above, and, on the other, the almost general fall in price, we must affirm that the economic vitality of France has not decreased in a positive manner; she continues to consume a very great quantity of the raw material and alimentary products of foreign countries (2,506 and 1,020 millions respectively), and especially to export manufactured articles (2,136 millions).

But if the positive figures are satisfactory, in respect to those that France herself formerly furnished; if these denote a constant and unremitting increase of commercial transactions,—we come to wholly different conclusions as soon as we begin to compare them with the figures of the external commerce of other countries. Whether it is a question of the oldest known competitors, such as England, or whether we consider especially the rivals which have more recently risen in the economic field of action, we do certainly perceive very quickly that France is, little by little, being distanced by her competitors. Assuredly, she is not losing ground, but the others are advancing more rapidly than

she, and her relative value in international commerce is declining almost continually. Is this a question of an accidental fact? or are we in the presence of a phenomenon governed by the imperious laws of nature and the economic evolutions of the world? This is precisely what the author desires to ascertain without weighting his observations with given statistics, which the reader may easily find in special publications.

France has at all times been principally an agricultural country; whoever has traveled over her varied soil knows how few are the uncultivated parts which arrest the gaze of the stranger, and knows, too, with what obstinacy the French peasant applies himself to the work of wresting his nourishment and that of his animals from the earth. In order to cultivate their grounds, or pasture their cattle, they have cleared so many of the woods that lately it has been found necessary to restock the mountains with trees in order to subdue the torrents and avoid the overflowing of the streams. Even Gascony, formerly celebrated for its sterility, for the last fifty years has been the scene of satisfactory farming. The love of the land, the passion for possessing a bit, however tiny, of the mother country's soil, is innate in the blood of the race. You will meet scarcely a single townsman in whom this does not form a secret dream and ambition; and, as for the countryman, he is ready to sacrifice everything in order to acquire his tiny slip of land, and, having acquired this, to enlarge it.

The skies of France are mild; from the mists of the north to the clear blue of the Mediterranean coast; from the snowy summits of the Alps to the shores washed by the Atlantic,—we may say that everything starts up, grows, and comes to fruition, except the cultivation peculiar to the tropics. In respect to cereals, wines, and the raising of cattle, France yields to none, either in the diversity or quality of her varieties. Doubtless the wines of Spain and the beef of England have their exceptional value; doubtless, indeed, such wheat grains may be shown elsewhere in more abundant production, or trees in a more bushy foliation. Nevertheless, it is still true that no country offers a more complete collection of the products of the temperate zone,

and that when we contemplate the fruitful fields of France, we can easily explain that stream of invasions which, during the barbaric ages, ceaselessly led the populations born in the desolate plains of the East towards the gentle and more fertile climate of the Gauls.

But the land of France has been worked so generously, and for so long a time, that we can no longer demand the grain, so dear to her inhabitants, without giving the soil, through large quantities of dressing, natural or chemical, the elements of which anterior harvests have robbed her. The formation of the soil is so diversified, valleys, hills, and mountains are so frequent, and streams and little rivers so often intersect it, that we mention the vast stretches of Beauce or Champagne, where neither trees nor accidents of the land arrest the gaze, so far as the eye can reach, as the exceptions which prove the rule. The struggle for the possession of the land is so eager, and the law so rigorous, which requires that, when a succession opens, the property should be divided equally among the heirs, that three quarters of the tenures held are less than two hectares in size,—only *one per cent* of them being more than fifty,—with hedges, ditches, and hillocks to separate these tiny properties. On account of this arises the almost absolute impossibility of applying modern machines to the tilling, sowing, and culture of the cereals, which economize hand labor, while at the same time, there is still the necessity of making a large outlay in order to keep up the fruitfulness of the soil. Also, for the raising of cattle, there is the obligation of herding the animals in little meadows that are placed under the costly régime of extensive culture. So that France, who has not so long since arrived at the point of producing enough wheat and meat for her own consumption, who has only lately attained this through the combined action of agricultural science and her own native energy,—which threatens to soon outstrip her needs,—France produces at such a cost price, or in proportion to such minimum powers of disposal, that she would never dream of laying down the law in the market of the world. The wheat of the United States and of Russia and the herds of the Argentine

Republic could not be distanced by her, and are always ready to run her out.

That which is true of the fundamental products is still truer, perhaps, of some of the exceptional products. There is not an American reader who does not know, for example, the extraordinary fortune of beet-root sugar, which, invented at the beginning of the nineteenth century, has come to supplant, if not to suppress, cane-sugar. But on what conditions has it been expanded on lands of enormous value, that are so dearly established and also so costly to provide with the proper fertilization. The affair was only accomplished,—only, indeed, since 1884 in France,—by the aid of a fiscal system assuring a partial immunity from taxation to those who delivered plants that were richest in saccharine matter. The tax being heavy, the immunity was found a sufficiently strong inducement to influence cultivators to improve their products. Without this efficacious stimulant, a flood of German beets would perhaps have inundated the country.

And what shall we say of the vine? The old French vineyards, that, for so many centuries, furnished our people with their national drink, which was both quickening and refining, occupied two millions and a half hectares, and yielded every year an average of fifty-five million hectolitres of wine. We might say that, in respect to the generations which lived some twenty-five years ago, the capital of the first founding of this enormous source of riches was entirely liquidated. To tell the truth, the expenses incurred by the improvement of the lands had sensibly increased; consequently, there arose so much of the lowering of wages for hand labor, which plays so great a rôle in the care of the vine, that considerable expenses were occasioned by certain diseases, relatively recent among the vines, such as oïdium and mildew. The yield, however, continued very profitable and little subject to change. But the phylloxera came unexpectedly; after years of fumbling we were obliged to resign ourselves to pulling up the old roots of the vine. We replanted with American cuttings, which we grafted with French slips; some million francs were set aside for this work; the substitution is to-day almost

complete, and we have nearly got back to a state of things similar to the large returns of former times. What a difference, however, between the present and the former economic situation ! The expenses of improvement do not grow less, hand labor becomes dearer and dearer, and it is always necessary to struggle against the reënforcement of expenses, and against the same old diseases. Besides, it is necessary to pay interest on the new capital used in the substitution. Worse still, at the very height of the crisis, at the time that French production had diminished to less than half, vine growing was started or developed in countries which had not before been large producers, and whose soil, less worn through several centuries of work, was not so favorable to the growth of diseases. These were Spain, Italy, Algeria, Hungary, and southern Russia. The taste of the consumer had in the meanwhile changed. When the rise in prices occurred, some ingenious tradesman invented some manufactured drinks, which have broken the trade of the natural products. Even the lovers of fine wines at this time often showed more care for the label on their bottle than for the quality and veritable origin of the contents. So that at the very time when the French wine sellers thought they had reached the limit of their exertions, and were once more capable of resuming their old position in the international market, they found themselves face to face, on one hand, with new competitors, and, on the other, with consumers who were difficult to win back, and, with all this, the general conditions of the cost price infinitely less advantageous than before. Without doubt, France remains a great exporter of wines and spirits, since she makes every year from 250 to 300 million francs in this business ; but more labor is necessary, and she gets less profit.

To sum up, even if we consider only the principal branches of agricultural industry, we see that France, through the very conditions of her production, is not in a condition to govern international commerce. If she preserves a national monopoly by the excellence of her fine wines and brandies, her articles of more general consumption are either wholly absorbed in herself

or strongly competed with by similar foreign articles, whose cost price is more advantageous. Even her butter is menaced by margarine on the English markets, and her admirable variety of fruits is now subjected to a very close industrial competition. The privileges that she held by virtue of her soil and climate are not those with which she can easily be profited in the actual international economic struggle, since her soil, overridden by many generations of farmers, demands so much expense in order to become fertile. She has the qualities and faults of an old country, and, at the present time, the faults have the better of the virtues in respect to the powers of competition.

For great industry, France is hardly favored by nature. Assuredly she does possess some coal mines, but they hardly suffice for three quarters of her consumption; they do not appear capable of expansion, and the surplus has to be demanded of foreigners, principally England. She has iron ore in very abundant quantities and of splendid quality, reserving for her in the future several hundred million tons; but these ores, almost wholly concentrated on her extreme eastern frontier, are relatively distant from the charcoal and French coke necessary to work them. She produces silk, but in an insufficient quantity for the demands of the manufacturers of Lyons, who seek in the East what is lacking at home. She procures her wool of Australia or South America, her cotton of India or the United States. To be brief, she imports largely of the raw materials, and when she produces them herself, they are either insufficient in quantity or badly distributed geographically.

The imported materials arrive at ports which are, for the most part, very far distant from the industrial centres of manufacture. If you glance over an industrial map of France, you will not fail to be impressed with two points. In the first place, her coasts, even that of the Atlantic, present very few reëntering angles; that is, it has not been possible to build any ports which should be sensibly projected into the interior of the land, a thing desirable in commercial ports. Nevertheless, by way of compensation, the principal manufacturing regions, if we except the north, which is

in proximity with Dunkerque, and the valley of the Seine, with the centres of Paris and Rouen, are almost entirely situated at the opposite extremity of France. We may say, in a general way, that the raw materials arrive from the west or the south, that they go to be worked up in the centre or the east, and that a great part of them, indeed nearly half the French exportation, finally return to the west, in order to set out once more towards England or America. This is extraordinarily illogical in appearance, but may be explained, however, both historically and geographically. The silk manufactories of Lyons were originally settled close to the silk producing centres of the Rhone valley, and they have remained there, even though they are obliged to send for great quantities of silk from the East. The metallurgic industries, not finding at their hand both coal and ore, have drawn nearer to the ore. Spinning and weaving have been first and foremost in the countries that are favored in respect to natural hydraulic forces, and this is the reason that the Vosges constitute one of the principal centres of the French cotton industry.

This situation, which overburdens the raw materials and their products with heavy charges for transportation, would, on the whole, have but secondary inconveniencies, if France were provided with cheap and easy routes of communication. This is, unfortunately, not the case with her: the greater part of the rivers in France are not capable, in their natural and normal courses, of sustaining a large shipping traffic. The Rhone is too much of a torrent; the Loire too capricious, through the shifting of her sands, and there are, or rather will be,—for the work is far from being completed,—great expenditures needed to regulate them. Even the Seine, whose current is calm, and whose bed sufficiently stable, requires numerous improvements in order to make way for boats with somewhat increased tonnage, so that navigation may become economical. We have doubtless remedied the evil, in some part, by the building of a large number of canals, where, for the last twenty years, navigation has not given rise to the collecting of any toll rights. But the construction of the ways of communication has not, in recent years, been

pursued with a sufficiently sustained activity. Nor has their number or capacity for traffic been developed with a rapidity proportional to the actual or proximate needs of industry. For railroads, on the contrary, we have made considerable effort, and the general system may, excepting perhaps for a few improvements of detail, be considered definite and sufficient. If we remember, however, that each one of the railroad companies holds a monopoly in the region to which it is assigned; that it is only very rarely competed with by any water-roads or canals; that it is placed under the régime of guaranteed interests,—namely, that within boundaries determined by the act of grant, the insufficiencies of its improvement are covered by the public treasury in order to remunerate the capital employed in its construction;—and, finally, that the administrative control which is consequently exercised upon it has frequently more fiscal than commercial preoccupations and takes fright at an almost momentary lowering of receipts,—we shall not be astonished that the price of transportation should be raised, since these transportations are numerous and prolonged, by reason of the very nature of affairs, and the result is a very appreciable burden for French industry, and also a cause for marked inferiority from the standpoint of international competition.

This is not the only misfortune. France is an old country, as we remarked while speaking of her soil and agricultural capabilities. She is not only so as a country of cultivation, but also as a State; for under this title her ancient politics hang with heavy weights upon the present generation and upon the financial conditions of industry, whose tax follows sensibly upon the cost price.

The service of the public debt, and that of the military, marine, and colonial expenses, absorb every year two thirds of the budget of France, or to put it in round figures, from 2,300 million francs to 3,500. These alone, these two categories of expenses, are to-day greater than the whole budget of 1869. There is not another country in the world which has been brought face to face with such enormous expenditures; and, in

spite of this, it needs all the power of French parsimony for the population to maintain the high degree of comfort which they have reached through their hard labor. Since the fatal struggle of 1870-71, France has not only had to pay the enormous indemnity of war demanded by Germany, but she has also been obliged to restore her armaments, her fortifications, and her fleet; and since scientific progress exerts its influence in this direction also, she has been constrained to begin all over again, on several occasions, this labor of Penelope; she has maintained a standing army, and prefers the eventual formation of a line of reserve troops as she has never before done; she has been forced to incur great expenses in her public works, as she was delayed by her railroads, her canals, and her ports; she has multiplied throughout the country public schools of all grades and kinds, which had been so neglected since the institution of universal suffrage in 1848. In order to meet these various but simultaneous demands, it was necessary to increase the taxes, and so to increase the debt. Only in order to pay the direct or indirect expenses of war, did they, for some months, raise a sum total of direct or indirect taxes equal to a third of the receipts of the budget of the time. The consolidated debt, already nearly thirteen billion francs, on the first of January, 1871, has been more than doubled, and almost tripled, since that time, and there is so much to do still to keep the country in touch with economic or military progress that it is impossible to foretell whether we can ever settle into an efficacious and continued decrease.

This state of affairs has only mediocre inconveniencies as regards the interior life of the country, since all the classes of the population having to support the same burden, in proportion to their ability, and the impoverishment of the citizens and the general rise in the cost of existence make themselves strongly felt everywhere in the same manner. But from the standpoint of international commerce the situation is entirely different. The service of the public debt, for example, costs in England only 11 francs, 25 for each inhabitant, while it shows 28 francs for France, and we might point out something quite analogous in regard to the taxation. This

disproportion has a terrible reëcho, when it becomes a question of fixing the cost price of manufactured articles destined for exportation. If the price of hand labor in France is nearly on a par with that of Germany and not so dear as in England and the United States, the equilibrium in financial conditions of industrial production is broken, to the detriment of France, by the weight of her public expenses. Already condemned to a proportion but average in quantity, on account of the insufficiency or bad distribution of her riches, the mediocre position of her ports, and the absence of natural ways of communication, France is condemned to see this production become dearer and dearer through the heavy heritage of her ancient politics. So that, making an exception for those articles of luxury to which we shall have occasion to return later, and upon which the ingenuity and taste which she is mistress of permit her to place her own prices, she is not in a measure to play a dominant rôle in the market of the world. The English cotton cloths, the woolen goods of Germany, and American metal work, to quote only the essential products of human industry, determine the universal currents, and overflow international commerce.

An activity or very great eagerness in negotiations, properly so called, would perhaps compensate in a certain measure for the evils of this situation. But such an activity is not, nor has ever been, a part of the French character. Although victory in an important war constitutes by itself a powerful commercial impetus, and the effect has not failed to show itself, for thirty years, to the profit of Germany, the new ways of international negotiations are not among the traditions of France, and certain essential instruments of their action are almost entirely lacking in the latter.

This may surprise one who is only acquainted with the French people through their reputation for violent extremes and the unexpected extravagances of their imagination. In reality, they are so only in their manifestations in the intellectual order. In politics there is hardly another nation more revolutionary in their words and more conservative in their deeds. In their private life, there

are assuredly none more temperate in their ambitions and less audacious in their undertakings. So ardently as the Frenchman caresses the most improbable conceptions in his dreams, so easily, in the ordinary course of his life, does he yield himself to the mediocrity of existence. Surely we cannot say of the Frenchman that he has no needs; he has many and of various kinds; for many centuries of culture have refined his nature and opened his mind to various luxuries as yet indifferent to a number of civilized nations. But each one of his needs is of a medium proportion; he does not love activity for itself, and, for example, does not exercise his strength in business for the sole pleasure of working; he does not willingly exile himself, because from his birth he is told, in the words of the old saying, that his nation "is the most beautiful kingdom next to the Heavenly one," and of this he is profoundly convinced; and he has no taste for adventures, danger, or the unforeseen, and asks just enough for his material life of whatever is indispensable for allowing his imagination to accomplish the flights he will take very good care not to perform in person. He is not a speculator by temperament, and is willingly contented with a modest but regular income, which will bring him without mishap to the time, when, having succeeded in dowering his children, he will have, through more saving, a sufficient sum to spend his old age in peace, and then with his neighbors devise general doctrinaire schemes and philosophical ideas, which he has never known but in the limited field of his own personal experience. In a word, he seeks ease rather than a fortune, and just as the Paris workman, who is paid highly enough, spends his weeks, if he can, in two or three days of work in order to sit with his arms folded for the rest of the time, so the representative of the middle classes strives in the measure that is necessary to enable him to retire as soon as possible from active work.

And this is why the French, with all their charm, their wit, and graceful manners, cannot furnish for their industries a satisfactory number of commercial travelers to go to the four cardinal points of the world and celebrate the incomparable merits of their national products. It is also the reason why, apart from

very rare exceptions, the merchants, often badly posted upon the demands of foreign consumption, do not always show enough zeal in serving or foreseeing this consumption. The idea haunts them, so far as to paralyze whatever efforts they do make, that France excels only in articles of luxury; and as this production is only extended toward a limited set of customers and fancy travelers, they willingly expect that people will come to buy from them articles which they would sell in much greater quantities, if they would only make the efforts necessary to carry them abroad. They do not run after customers; they let customers come to them. They are rather like the old ladies of the aristocracy, who feel that they are lowered, indeed, if they take the first step towards a new worldly acquaintance, at a time when people pressed to succeed,—and they are legion in the commercial world,—are sacrificing everything to the care of making themselves known.

But little inclined by nature to launching out into distant enterprises, the French are still further removed from the attempts they might make in this direction, by certain faults in their commercial equipments. Every one knows, for example, what a great power and what an excellent means for advertisement it is to possess a numerous and active mercantile navy: the more the flag is shown abroad, the more chances there are that foreign countries will think of intrusting to it the care of their trade. But the French navy is declining; it is falling off in spite of the premiums that the public treasury accords for the construction of vessels and their proper navigation. And why? Chiefly for this reason, that France has very little or no heavy freight to unload on setting forth from her ports, and that, if they wanted to save partly on ballast, a vessel would almost always be obliged before starting upon her definite journey, to go and pick up, successively, soap at Marseilles, wine at Bordeaux, silks at Havre, etc., etc. Peculiarly rare are the circumstances in which it is possible to make a complete change for a single point. In doing this, there is naturally a great loss of time and many expenses, and, consequently, the dearness of freight. Now, on the con-

trary, what does an English ship do? She leaves the metropolis with coal; she carries this coal down into the Mediterranean, the Atlantic, and elsewhere, and having already paid for her trip, since she intends to profit by her return voyage, at least in some measure, she accepts partial freight, in case of necessity, and always cheaper. So that in the greater part of the waters, the freight furnished by France herself, at the French ports, has the honor of sailing under foreign flags, and she counts herself indeed lucky, if by her distance from the coast and lack of water ways, she does not find it advantageous for her merchandise to leave the country by rail in order to go on to a foreign port.

From the financial standpoint, again, there would be much to do in order to equip France suitably for the international struggle. This seems almost improbable when speaking of a country where parsimony is so abundant, where state loans, either national or foreign, are so easily taken up, where so many fortunes have been invested and lost in the unfortunate speculations of Panama, South America, and others of a like nature. But it is extraordinarily difficult for a tradesman or merchant of moderate means to procure stock either to extend his industry or to carry on transactions for a lengthy term with distant countries, if he does not succeed in his own personal relations. This is why.

Is it a question of waiting six months or more for the regulation of a sale which took place in Russia or Africa? The negotiable bank paper is always in France for three months; the bank of France, where all operations of discount result, or should be made to result, only accepts the paper for three months sight maximum. In order to cover his advances in merchandise the merchant should either give the qualities of real estate in his own business to his circulating capital, which will make his way singularly difficult, or he should again cover it with expedients, such as the renewal of the paper, warrants, etc., which the intermediary bankers will make him pay very dearly for under the form of different commissions.

Or is it, on the contrary, necessary to find stock to complete, perfect, or enlarge a trading house? France possesses very large

private banks; these banks have in their safes fantastic figures of deposits in ready money, but they are so afraid lest their customers should ever be uneasy and a run take place on their funds, that they are very careful to keep their names from being known or of investing a fraction of their resources in a manufacturing business where there is any risk. They draw the greater part of the national savings toward the only investments considered sure, that is, government bonds or those guaranteed by the State, and they so far impoverish the eventual powers of disposal in industry and merchandise. As for the smaller banks, they have a partiality for resounding and profitable issues, but they want them so resounding and so profitable that they despise a business which does not allow them much noise and some "majorations," and which does not leave them a suitable margin for remunerating the press, the brokers, and themselves.

And too often we see serious business transactions deprived in this way of the resources indispensable for their development, while the national parsimony is either crystallized in public loans or wasted in hazardous enterprises that the consummate art of the brokers has known how to present under colors sufficiently deceptive to lure the imagination of the public. Between the so-called family investment, which yields regularly an unvarying income, and the speculating on large plans, in which millions are periodically engulfed, the place which remains is too restricted to be available for the honest and permanent needs of the merchant world, which is too large, in return, for the doubtful managements that are obliged to ask the public for double or triple the amount that would be strictly necessary, if they had not to pay largely to those men discreetly called intermediaries.

Such are the essential traits which characterize the economical aspect of France at the end of the nineteenth century. Certain ones, such as the budget expenses, the wine crisis, etc., are of wholly recent and accidental origin, although producing lasting results; others, which are due to the formation of the soil and the natural temperament, are old and permanent. It remains with us to determine, as far as possible, and with due considera-

tion for the revolutions in manufacturing which the least scientific discovery may lead to, what commercial future would spare France a similar state of affairs.

It is easy to understand that to-day the permanent factors of produce in France play an entirely different rôle from that of the past, and have recently acquired an exceptional importance. So long as modern machinery was but little known and the number of producing countries still small, and the intensity of international communication infinitely smaller than at the present time, these factors played only a secondary part. Each country easily made its influence felt upon its nearest neighbors, and was only to be distinguished from its competitors by the personal value of its products, their solidity and perfection. Under these relations, France enjoyed an undisputed advantage over her rivals. Without being charged with party fanaticism, we may say that there are no other people whose workmen possess more ingenuity in the making of their models, or employ more taste and care in their execution.

The expansion of modern machinery has overthrown the entire equilibrium of things. On one side, the substitution of machine for hand labor in a very great number of manufactories, has diminished in production the relative parts of the native qualities of the artisan; on the other hand, the utilization of these same machines has allowed other countries, who had no industry, to create one without previously needing to acquire the antique professional education of the older countries. At the present time, they are manufacturing in many more countries than before, and they manufacture in a more uniform manner. It is certain, for example, that once let a pattern of cloth be invented and consequently shown, and the business may be carried on in Japan as well as in France; it makes no difference where, unless it is necessary to employ with it the art peculiar to the silk worker ("canut") of Lyons. Certain it is, also, that the rolling mills invented in the United States will give the same results in Germany as soon as they shall arrive at bringing the melting to the same point of dephosphorization.

The individual is consequently effaced by the machine; production becomes, if one may express it so, more impersonal and more anonymous. At the same time, it becomes more abundant, and as, on the other hand, consumers have a constantly increasing tendency for cheaper things, from both sides the opposed forces compete to determine the fall in price. When the unification of the processes of fabrication and that of the results furnished by the sale are simultaneously produced, the result is that, from the standpoint of international competition, the principal articles of consumption offered upon the market of the world are no longer distinguished, for the most part, save by the margin of profits that they leave for their importers, that is, by their cost price, or, to be still more exact, by the only variable elements of this price, namely, proximity to the raw materials, facilities for supplying the motors of the mills, accommodations for transportation, etc. So true is this that, in fine, extreme industrial civilization brings back to the first rank those natural elements for a moment lessened by human intelligence. The geographical position, the formation of the coasts, and the geological composition of the substrata, all engender certain fatalities from which we cannot escape. We have shown that in these respects France is not favored.

Indeed, she is so little favored that at one time, if she had not taken care, her own interior market would have been flooded with foreign production. It is not possible for French wheat, even in France, to oppose American or Russian wheat, nor for the cotton cloths of Vosges to withstand those of Manchester. Protectionism, which in the United States served to prevent a growing industry from being stifled in its cradle by the influx of foreign production, has appeared in France, since the last twelve years or so, as the only means of protecting the existing industry and agriculture from external competition on the national market. That we should have gone too far in this direction, after having gone too far in the opposite one; that errors in detail, of which the greater part have since been corrected, might have been committed in the very beginning in the making of the

tariff,—we have neither time nor place to examine. But it is enough to repeat that protectionism, for which, moreover, other countries have set France the example, and which England herself practices in indirect ways, while protesting against it when she deems it useful,—in regard to her cattle, for instance,—protectionism has been imposed as an inevitable necessity in the new conditions of international competition.

After having served to reconquer the interior market, protectionism has equally well served to secure future markets for the mother country in her colonial empire. France, like almost all other countries, has a surplus of production ; this surplus, for reasons that we have noticed above, does not sell with the greater part of its competitors. On this account, she has begun to think of constituting in Asia, Africa, and Madagascar, a kind of reserve of consumers, capable of absorbing her products cheaply at one time or another. Whether she has already reached her end, or is about to attain it, is a question which deserves a separate study. But the explanation of her recent colonial expansion and of the measures adopted in the custom-houses to tax the French products manufactured in Indo-China and Madagascar, is to be found therein.

To sum up, we may consider that France is sufficient unto herself, in this sense, that her industry, forced to introduce raw materials in order to be maintained, manufactures at least all the products necessary for national consumption, and can furnish a sufficiently respectable surplus for the colonial markets. But she is not in good condition for competing with the large producing countries in the international market. Indeed, she can only usefully approach the latter with those of her products in which nature has conferred upon her a kind of monopoly, or upon which her own genius allows her to impress an original stamp. The great wines of Bordeaux and of Champagne, the brandies of Cognac, may well be competed with by adulterated liquors many times decked out with deceitful labels ; but they can never be supplanted in fashionable consumption, because they have nowhere their equals. The great silk manufactories of Lyons, the fashions and

confections of Paris, and, in a general way, all the industries of French art, jewels, the goldsmith's art, glass works, furniture, etc., will always have their customers. Without doubt the consumers are often satisfied with reproductions instead of the original works, with brilliant but flimsy fabrics instead of costly and durable stuffs; but true luxury is not disappearing from the surface of the globe, and will continue, for a long time to come, to have recourse to that market which,—the Exposition of 1900 has given shining proof of this,—has conquered and reconquered each day, at need, an indisputable preëminence by the fertility of its creations and the perfection of its taste.

These last questions are ones which are not to be extemporized: they are acquired by a nation only at the price of long continued efforts and the hereditary education which establishes them like a new nature. In spite of this, we may fear lest the situation, which has just been described, promptly become perilous for the international economical future of France; the artistic education has, indeed, realized notable progress during these last years in all parts of the world, and certain results already acquired by the adepts of the "modern style" would lead us to think that the sceptre of taste and of fashion may perhaps pass into other hands. It does not seem, however, as if this danger were either imminent or decidedly to be feared, and the whole history of France shows that she has often surprised the world by her unexpected rebounds.

"If the diversity of our interests and our natural inconsistency bring us often to the brink of frightful precipices," said Cardinal Richelieu, who knew his countrymen well, "our very light heartedness does not allow us to remain firm and stable in regard to what concerns our good, and draws us away from it so promptly that our enemies cannot take fitting measures for such frequent changes, and have not leisure to profit by our faults." The phenomenon has taken place many times from a political point of view. The sudden apparition of Joan of Arc sufficed to change the issue of the Hundred Years War; Napoleon immediately succeeded the humiliating period of the Directory;

the National Defence repaired, at least so far as the honor of the flag was concerned, the disaster of Sedan. The same phenomenon took place also in the domain of letters; the French Renaissance, the century of Louis XIV., the philosophers of the eighteenth century, and the great historic school of the middle of the nineteenth century, started up almost unawares, and immediately following a period in which French thought seemed to have been forever extinguished under the action of a professional intellectualism, which mistook scholasticism for philosophy, eroticism for a knowledge of manners, and destructive criticism for fruitful work.

Will it be the same in economics? No one may predict it, but we may affirm that it is very possible. If the traditions of French industry present proven faults, as regards the actual condition of international competition, they have their advantages also, which are not mediocre.

And, first and foremost, the wealthy patrons have a dominant characteristic of being more stable, as a whole, than the popular customers. The latter are not assuredly always the same individuals, nor the same families which are in a condition to buy costly productions, but there are always somewhere on the globe, a very nearly constant number of these individuals or of these families, who love to parade their riches under the exterior forms of sumptuous furniture, elegant gowns, and artistic objects. On the other hand, for example, after a great effort in metallurgic production to meet the pressing needs of the railroads, there are often sudden and prolonged limitations in consumption, which force a great number of the factories to stop work.

If the crises are less frequent in a country of medium industry, as in France, they are also less intense by reason of the extreme variety of her national industries. We might say, in a general manner, that a bad wheat harvest runs the risk of compromising the entire agriculture in the countries principally addicted to the culture of wheat; just as an epizootic disease affects the countries in which the principal effort is concentrated on the raising of cattle. In France, where we do all things, if there is a loss on

one side, there is almost always a gain upon the other; so that, as a rule, the equilibrium of public riches remains very nearly constant, and its progress continues.

But when a crisis does occur, the effect is peculiarly altered by the secret resources of the national parsimony. No one knows how to appreciate in a fitting manner what the "*bas de laine*" contains in which the peasant hides his savings. We can only remember with what facility the country has supported the expenses which accompanied and followed the war of 1870, and how the nation, which the pessimists believed would succumb under its burden of debts and taxes, has succeeded in not only increasing the latter, but even in augmenting her positive business figures, in the proportions stated at the outset of this article. Moreover, a Frenchman, upon whatever rung of the social ladder he may be placed, never spends the total amount of his receipts; so that in times of accidents or troubles, he always knows where to go to seek the resources necessary to maintain his way of living in the same degree that his neighbors are accustomed to see him. The merchant, in the same way, during his good years, guards well against distributing to his stockholders the whole of his wealth, but is eager to lay aside large reserves, which will promise, as the case may be, either to transform his plant without recourse to loans, or in his scanty years, to perfect his dividend without exterior falling off.

These latent forces which exist in France are the accumulation of a labor of many centuries seconded by the economizing and cautious temperament of the race. They are of an inappreciable aid in the moments of great economical revolutions.

We have already seen from many reconquests of the merchants how they change their mills unexpectedly in order to approach either their raw materials or their consumers. We have seen others change their machinery from top to bottom, starting again with newer machines, just as the vine growers of the south supply themselves with American cuttings, without our perceiving at the moment, on the outside, the importance of the sacrifices that they consent to impose upon themselves and the risks to

which they are exposed. What will be the result if ever a scientific discovery happens to upset the present conditions of industry and international competition? Here, again, no one may prophesy with exactness; but assuredly France is in a better condition than many others to evolve in a new direction, if ever the need makes itself felt. The very suppleness of her genius, which urges her in all things,—outside the domain of pure theory,—to seek means of solutions and to hold to them, allows us to believe that she will always know how to find her economic pathway in those hours when she will seem the most directly menaced in her vital forces.



THE PROBLEM OF DEVELOPMENT

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ONE single problem in biology excites so wide an interest at the present time as that of organic development. During the greater part of the present century naturalists have been especially concerned with the historical or phylogenetic development, or evolution of the animals and plants found living at present on the earth's surface, but at the same time the development of the individual from the egg, or the ontogenetic development has attracted an ever increasing number of investigators. The discovery of a supposed parallel between the development of the individual from the egg, or the ontogeny, and the historical development, or phylogeny, of the species, has greatly excited the interest and the activity of students of embryology, and has withdrawn attention from other and, as I believe, more important problems of development.

The main object of the present essay is to contrast the results of the study of embryology as an historical problem, with the results of the study of embryology as a series of problems directly connected with the phenomena of development itself. The one I shall speak of as the historical problem, the other as the scientific, although this distinction will not be generally admitted by embryologists, since it might seem to imply that the one method of study has greater value than the other.

PART I.

The early embryologists studied only the development of the chick, which has one of the most complicated forms of develop-

ment that we know. It was from a study of the development of the chick, by such men as Harvey, Wolff, Pander, and Von Baer, that many of the problems of development were suggested. It has been, however, only during the latter part of the present century that a systematic study has been carried out in all the different groups of the animal and plant kingdoms. An enormous accumulation of information has been the result. From time to time attempts have been made to classify these observations in such a way that so-called principles or laws of development might be formulated.

Let us, in the first place, examine some of these discoveries and see how students of embryology have attempted to interpret their results.

One of the first steps in the development of all eggs is connected with peculiar changes that take place in the nucleus of the egg. The nucleus is a spherical body lying in most cases at, or near, the centre of the egg. It has a definite wall, and contains in its interior a fluid and a more solid meshwork of a substance called chromatin. For reasons that will appear later the chromatin is looked upon as the most important element in the nucleus, and even, according to many investigators, in the egg itself. The changes that take place at the beginning of development are concerned especially with the chromatin of the nucleus.

It has been found, for instance, that the first noticeable change in the egg is the partial dissolution of the nucleus; all that remains of the nucleus are its threads of chromatin, and these separate into a number of pieces, or rods, called the chromosomes. It has been discovered that for each egg there is a fixed number of chromosomes, and, moreover, that this number is always exactly half that found in the cells of the body of the animal; or expressed more concisely, the number of chromosomes in the egg is half that characteristic of the somatic (body) cells.

Around the chromosomes set free in the egg there is formed from the protoplasm of the egg a spindle-shaped structure composed of threads, or fibres. These fibres become attached to the chromosomes, and the latter come to lie in the equator of the

spindle. At each pole of the spindle there is generally found a small body, that can be deeply stained. It is called the centrosome. Around the centrosome other fibres or rays extend out into the egg, forming, as it were, a halo around each pole of the spindle. The spindle moves to the surface of the egg, and turns so that one pole lies at the surface. At this time each of the chromosomes, that still lie at the equator of the spindle, divides into two equal parts, and the parts begin to move away from each other towards their respective poles of the spindle. The outer end of the spindle now extends into a small protrusion of the egg, and this protrusion pinches off and carries with it the contained chromosomes. Thus half of the chromosomes, formed by division of those that first appear in the egg, are extruded from the egg in the first polar body, and the egg also loses the outer half of the first spindle, as well as a certain, small amount of its protoplasmic substance.

The next changes lead to the formation of the second polar body. Around the chromosomes that remain in the egg a new spindle, very similar to the first one, is formed. The chromosomes, that were left in the egg, come to lie in the equator of the new spindle, and there they divide again into equal parts, and the halves migrate towards their respective poles. The spindle turns so that it lies with one pole at the surface, and at this point the protoplasm of the egg forms again a protrusion into which the outer part of the spindle is carried. The chromosomes migrate towards the poles of the spindle, and the protrusion pinches off to form the second polar body. The second polar body contains half of the amount of chromatin left in the egg after the extrusion of the first polar body.

It will be seen that the egg has lost three fourths of the volume of its chromatin but, since in each spindle the chromosomes divided into halves, the same *number* of chromosomes remain in the egg that were present at the beginning.

At about the time of the extrusion of the polar bodies the spermatozoon of the male enters the egg. It consists of a dense mass of chromatin forming the head, and a long, vibratile, pro-

toplasmic tail. The tail is left at the surface of the egg, or is absorbed by the egg and disappears. The head swells up, and forms a spherical nucleus, the male nucleus. It is known that this male nucleus contains the same number of chromosomes characteristic of the egg, and hence also half the number of chromosomes found in the body-cells of the male.

The chromatin left in the egg after the extrusion of the second polar body also forms a nucleus, the female nucleus, and the male and female nuclei now sink deeper in the egg, and also move towards each other, and finally fuse into a single nucleus, the so-called segmentation nucleus.

These changes that have taken place in the egg are known as the maturation and fertilization of the egg; they have been fully made out only during the last fifteen years; although the fertilization of the egg by the spermatozoön has been known since 1786, and the extrusion of the polar bodies was first observed in 1848. For some time it was supposed that the entire nucleus of the egg was thrown out into the polar bodies, and a new nucleus brought in by the spermatozoön; but we now know that the egg and the spermatozoön contribute an equal number of chromosomes to the segmentation nucleus.

Very great interest has been aroused in these changes that lead to the extrusion from the egg of three fourths of its amount of chromatin; and much speculation has been indulged in with regard to the meaning of the phenomenon. Some embryologists have attempted to give a physiological explanation of the process, while others have given an historical interpretation. Minot, Van Beneden, and Balfour have supposed that the egg contains at first the properties of both male and female elements, and that by the extrusion of the male element, in the two polar bodies, the egg is prepared to receive the spermatozoön. But aside from the fact that we should suppose one polar body would be sufficient to set free the male element, and that we know of no similar process by means of which the spermatozoön frees itself of its female element, there are many more recent observations and experiments that put the matter in an entirely different light.

Strasburger's idea that the essential element of the nucleus, the idioplasm, is reduced to one half, and must be renewed by the material received from the spermatozoön, is also undoubtedly a wrong interpretation, as subsequent work has shown; for we now know that the female and the male nucleus if supplied with protoplasm are each capable of forming a complete embryo.

Weismann has also attempted to give a physiological interpretation of the process of extrusion of the polar bodies. He supposed, at first, that the egg freed itself by means of the two polar bodies of that part of the chromatin-substance that had been concerned with the building up of the egg itself while it was still a part of the parent organism. Later, Weismann supposed that while in one of the polar bodies the ovogenetic substance was set free, in the formation of the other a qualitative division of a different sort takes place in the chromatin. In order to understand fully Weismann's idea, it is necessary to know something of the way in which he supposes the qualities of the adult are contained in the chromatin of the egg. His view may be briefly stated as follows: every part of the embryo and of the adult is represented by certain elements,—the determinants in the chromatin of the egg. These, he supposes, have the property of dividing, and as a result of increasing in number. One of the divisions of the chromatin of the egg that leads to the formation of one of the polar bodies is a qualitative division in the sense that the egg loses half of its determinants, which are replaced *in kind* by those received from the male. The other division of the egg-nucleus to form the first polar body, Weismann believes, as has been stated above, to be a division by means of which the egg loses that part of its chromatic material that was needed to form the egg itself,—the ovogenetic chromatin.

Since the egg-nucleus after the extrusion of the polar bodies is equivalent to the sperm-nucleus, we should expect to find some process in the formation of the spermatozoön equivalent physiologically to that of the maturation of the egg, but no such process is known; and Weismann found himself unable to give a satisfactory account of its absence. In fact, we can now state defi-

nately that in the development of the spermatozoön there is no process that can be interpreted as Weismann has interpreted the first polar body; and there are certain facts in the development of both the spermatozoön and the egg that show Weismann's views to be incorrect.

In regard to the interpretation of the second polar body, it is more difficult to give a demonstration of the incorrectness of Weismann's explanation; but there are, at least, certain facts that make the view improbable in its physiological sense; for even if it should prove true that half of the chromosomes are set free at the second (or even at the first) division, it by no means follows that the egg has lost half of its inherited qualities.

Weismann's entire conception of the origin of variation, and hence of the possibility of natural selection, is based on his idea of the qualitative division of the chromatin of the egg and of the spermatozoön at one stage in their development. He supposes new variations to arise by means of the different combinations of male and female chromosomes at the time of fusion of the male and female nuclei. Weismann even goes further, and maintains that *the purpose* of the supposed qualitative division is to produce new variations. He thus introduces a teleological element into the problem, under the disguise of its being the outcome of natural selection. In other words, natural selection has fixed and made constant a change that has for *its purpose* the bringing about of new variations for the further action of natural selection!

Aside from the uncertainty of the reasoning there are facts, that make, at least, improbable Weismann's teleo-physiological explanation; and these will be apparent as soon as some further observations and experiments have been described.

Several naturalists have maintained that each polar body is equivalent to the egg itself, and that the process of division is a quantitative process except in so far as the amount of protoplasm is concerned. A careful comparison of the maturation of the egg and of the spermatozoön has shown that the egg and its polar bodies (after the division of the first polar body that generally

takes place) are equivalent to the four spermatozoa that develop from a single mother-cell. Every spermatozoön is capable of fertilizing an egg, i. e., they are all equivalent. If, then, the process by which they form is the same as that by means of which the polar bodies develop, we should expect to find each polar body also equivalent to the egg or to a spermatozoön.

The most obvious difference between the egg and the polar bodies is in the relative amount of material contained in them; and the question arises as to whether the polar bodies might not develop into embryos if they contained more protoplasm. The observations of Francotti, that have been recently published, show, that in one animal at least,—a planarian,—the first polar body may, indeed, form an embryo.

Furthermore, an experiment, first carried out by Boveri, has shown that each spermatozoön, if supplied with enough of the egg-protoplasm, may produce an embryo, even in the total absence of the egg-nucleus. By shaking violently in a small tube the unfertilized eggs of the sea-urchin they may be broken up into pieces of all sizes, some of which will contain the original egg-nucleus, and some of which will not contain any nucleus. If a single spermatozoön enters the larger of these pieces without a nucleus, the piece begins to develop, and ultimately produces a perfect embryo. We thus see that it is not even necessary for the male to fuse with the female nucleus in order to form an embryo, but the spermatozoön can, if supplied with protoplasm, produce the complete form. That the egg also may develop without fertilization after the extrusion of the polar bodies, is shown by certain eggs that develop by parthenogenesis, and by the recent experiment of Loeb in which the eggs of the sea-urchin that have extruded both polar bodies develop when put into certain salt-solutions.

These recent observations and experiments show that Weismann was wrong in his interpretation of the first polar body; and, while it must still be admitted that possibly at one of the divisions half of the chromosomes may be lost, yet there are no facts known to support the idea that in this way half of the hereditary

qualities are set free, or separated; and there is some evidence to show that one chromosome is like another, and it would make no difference so far as the quality of the division is concerned whether half of each chromosome is lost at each division, or whether half of the chromosomes (assuming them to be double) are set free. It seems to me that Weismann has been most unfortunate in his attempt to find a physiological explanation of the maturation of the egg.

There is another point of view, the historical, from which we may consider the process of maturation. The two maturation divisions seem to be equivalent, as we have seen, to the last two divisions by means of which four spermatozoa are formed. A few embryologists interpret the division of the egg to form the polar bodies as the repetition of a process by means of which four eggs were once produced; each equivalent to one of the four spermatozoa, and each capable, after fertilization, of development. In the course of time one of the three eggs has come to retain all the yolk, and most of the protoplasm, and the others have correspondingly lost their material, and fail, in consequence, to develop. Or expressed in a different way, the process has no physiological significance at all except so far as the egg simply repeats an historical process. Should this interpretation turn out, in the end, to be the most probable one, then we have a good example of the uselessness of trying to interpret as useful all the facts of embryology.

At present it is the habit of embryologists to attempt to show that each change in development is useful, and hence exists. They attempt to give *a reason* showing that each historical change has been useful to the egg, but I do not know of any canon of science that requires us to put this interpretation on all natural phenomena.

This interpretation of the formation of the polar bodies as the repetition of a past event by means of which four eggs were formed, vindicates the historical method, in the sense that we get a certain insight into the *meaning* of the process, that we would not otherwise have had; but we should, at the same time, not for-

get that we have not a causal explanation of the formation of the polar bodies by showing that, in the past, each polar body was an egg. All we can infer from this interpretation is that the egg has at present nearly the same structure, so far as concerns the first changes that take place, that it had in the past, when four eggs were produced; but its structure has also changed in so far that at each of the divisions, to form the polar bodies, one of the parts in each case now remains extremely small, but, except so far as their volume is concerned, the polar bodies retain all the physiological properties of eggs.

We may now pass to an examination of the stages of development that follow the fertilization of the egg. Around the nucleus, formed by the fusion of the male and female nuclei, a new spindle develops. The origin of this spindle is, at present, under discussion; and it is best not to speak dogmatically, but it seems very well established in some cases, that its origin is connected with the introduction of a body, or of a substance, into the egg with the spermatozoon. Not that the spindle itself is introduced, but an exciting substance that causes the egg to produce a spindle. On the other hand, it is equally certain that in many cases the egg itself without being fertilized can also produce a spindle as in parthenogenetic development. The nuclear wall now dissolves, and the chromosomes of the nucleus appear. We find as many chromosomes as were in the female nucleus plus those that were in the male nucleus. The number is now the same as that characteristic of the body-cells, and we have some evidence to suppose that the same chromosomes have reappeared that were present in the egg- and sperm-nucleus. Each divides into equal parts, and the parts separate and move towards the poles; then the whole egg divides, generally also into equal parts.

To attempt to discuss the many problems connected with the division of the egg, would carry us into two special fields of study; but I may point out that we meet here, on the one side, the historical interpretation of the meaning of the cleavage, and, on the other side, a study of the phenomena of the mechanism by means of which the division is brought about.

The first observations on the division of the egg were made in the early part of the present century; but the process was not clearly understood until some time later. With the formulation of the cell-theory, in 1839, the question of the origin of the cells of the body arose; and it was soon suspected, that the division of the egg is a process that leads to the production of the cells of the adult; and the further conclusion was not long in being reached, that the egg itself is a cell, the mother-cell of the host of cells that make up the body of each individual.

The first division of the egg is succeeded by a second in each part, or cell; and then each of the four cells again divides; the process continuing until a large number of cells have been formed. These cells are usually regarded as the building blocks, out of which the embryo is formed; but the comparison is imperfect in one essential respect, inasmuch as the building blocks are not passively moved about by some external power, but they contain within themselves the power of movement and of producing in this way the embryo.

It is not easy to give in a few words a general idea of how the cells make the embryo, for there are many different ways in which this is brought about. In some cases plates or sheets are formed by the partial fusion of the cells; and these plates by bending, or folding, produce the different organs. In other cases solid growths are formed, and these mould themselves into the organs; and there are still other ways in which the organs may develop. We can not, however, pass over this period of the development without saying a few words about the germ-layer hypothesis, and the gastræa theory.

Casper Friedrich Wolff first discovered, in 1759, that the embryo of the chick was formed out of two layers or sheets; and later embryologists discovered another layer, itself composed of two layers, lying between the outer and the inner layers of Wolff. Huxley, in 1849, drew attention to the similarity between the structure of some of the lower animals—the hydroids and jellyfish (whose body is composed of an outer and an inner layer of cells) and certain stages passed through by many of the

higher forms, in which an outer layer and an inner layer are present. This idea of a similarity between the two series was later elaborated into an hypothesis that affirmed an historical connection between the two. It was stated that in the development of the higher forms a two-layered stage is passed through, which is an historical repetition of the adult hydroid, from which the higher forms are supposed to have been derived. The outer layer or ectoderm of the hydroid is said, therefore, to be *homologous* with the outer layer or ectoderm of the embryo of the higher forms, and the inner layer of the hydroid that lines the digestive tract, is said to be homologous with the inner layer of the embryo that forms later the wall of the digestive tract of the adult. As a corollary to these statements it is added that the ectoderm of one embryo is homologous with that of any other; and the same holds true for the endoderm, and even for the middle layer or mesoderm. If it could be positively established that there really exists such an historical connection between the different embryos and the older forms, the results of this comparison might have a real meaning, even if they did not have any further value; but it soon became evident that the comparison was perilous in the extreme, and wide differences of opinion arose in regard to the interpretation of the same facts; and in several cases it was discovered that what becomes the outer layer in one form becomes the inner layer in a related form. Furthermore, on closer analysis, it will be noticed that the idea of an homology, based on an historical connection, is not so simple as appears at first sight, for the connection is broken in each generation. The individual begins as a single cell, an egg. This, after fusion with another cell derived from another individual, the spermatozoön passes through a series of stages to reach the adult form. Admitting that there has been an organic continuity between the ancestral adult form and the egg of the last generation, and even admitting a similarity between the two, it is still by no means clear, from a causal point of view, that the former could have had any influence on the latter. Put in this way,—the usual formula,—the statement is, I think, misleading; but, as I

shall attempt to show later, the similarity of the embryo to its ancestor may be accounted for in such a way that at least nothing mysterious, or metaphysical, is included in the statement.

The crowning point of the germ-layer hypothesis is to be found in Haeckel's *gastræa* theory. The theory states that all the higher animals have descended from an ancestral form, whose body was made up of two layers, an outer and an inner. At one end of the body is the mouth opening, and at this point the two layers are continuous with each other. This ancestral form is repeated in the development of all the higher forms. Haeckel does not hesitate to affirm that there exists a causal connection between the ancestor and the embryo, as the following quotation shows :—

“I have represented the paleontological history of the species, the phylogeny, or the genealogy, as the real cause, on whose action the entire developmental history of the individual, the ontogeny, or embryology, rests. Without the former the latter could not exist. The cardinal point of this relation is that the connection between the two is a mechanical-causal one. The ontogeny is a short repetition of the phylogeny brought about mechanically through the function of inheritance and adaptation.”

We find in this series of affirmations a confusion of ideas that will appall any one who will try to think out how the phylogeny can be the mechanical cause of the ontogeny. It is one thing to state that this is the case, and quite a different matter to show, from a physical standpoint, not only that such a thing is possible but that it is also true. While we may admire the daring flight of imagination that conceived such an idea from the meagre facts, yet we can not forget that science is neither eloquence nor fiction.

In the last eight years a more elaborate development of the idea of homology has taken place. A detailed examination of the stages preceding the formation of the germ-layer periods has shown that, in a number of forms, there is a remarkable agreement in the method of division of the egg of many animals in the same group, and even in different groups. The resemblance is so close, and is carried out through such a number of compli-

cated divisions, that it seems scarcely possible to maintain that the similarity is a mere coincidence. The embryologists who have, with great patience and skill, worked out the method of division of these eggs have been unanimous in their belief that there is a direct connection of some sort that must account for the resemblance. In at least four large groups of the animal kingdom, the Annelida, Mollusca, Turbellaria and Nemertea the method of division of the egg in many forms of each group has been found to be the same or nearly the same. Not one of the embryologists who have studied these eggs, has gone so far as to imagine that the results are to be interpreted as the repetition of ancestral animals, that are represented at each stage in the division of the egg by the group of cells that we find in embryos at the present time. If we choose to indulge in such a fancy, there is nothing to prevent our doing so, in case we are willing to substitute imagination for evidence.

How, then, can we interpret the facts, if we reject the idea that the resemblances are not due merely to chance, and that they are not the repetition of an ancestral adult form? There is another alternative, the one commonly accepted; namely,—that the four groups in question have descended from a common ancestor in which the cleavage of the egg took place as we find it taking place at present in many of the living descendants. Let us examine more carefully this hypothesis, and see in what sense it offers us an explanation of the phenomena. The hypothesis includes, in the first place, the implication that the eggs of all these animals are parts of the same original protoplasm that has been handed down from generation to generation. The explanation rests on the assumption that the protoplasm has retained in many of the descendants the same structure, so far as the cleavage factors are concerned. It is this historical sequence, or connection, that is more or less satisfying to our minds, and if we like, we may call it an explanation, since it removes the element of chance and of mysticism from the phenomenon. On the other hand it will be noted that this view gives us no insight into the causes that produce the kind of

cleavage in each egg, and it is in the study of these causes that science is chiefly interested. Further, it will be admitted that because there has been an organic continuity between the past forms and the present ones it does not follow that the division of the egg must necessarily be the same in two forms descended from a common form, even when the two are closely similar in adult structure; for we find in each of the four groups named above, that some eggs divide entirely differently from the type-form, and, moreover, the form of the cleavage can be artificially changed by altering the conditions of those eggs that follow the typical method if left to themselves. Finally, it must be granted that the same type of cleavage might appear in a group that had no immediate historical connection with the four groups in question, as a result of the same factors or causes being present. Indeed it is by no means entirely settled that this may not be the case in some one or more of the four groups in question.

The same reasoning that has been followed here in the case of the dividing egg applies with equal force to the germ-layer hypothesis, and need not be repeated. To prevent misunderstanding, I must add, that the argument in favor of the two-layered condition of the embryo in all the higher groups being connected by an unbroken series of stages with the embryo of the same common ancestor, is *by no means so probable* as in the case of the dividing eggs, that we have just examined; for, since the condition itself is so simple, and develops in such a variety of ways, we can scarcely ascribe to this view any greater value than that of a pleasing invention that may have in some cases an historical foundation in the sense defined above.

We may now pass to an examination of the later stages of development. It will be well to confine our examination to a single group, the vertebrates, in which we can study to much greater advantage the historical problem of development.

The order in which the different groups of vertebrates appeared historically on the earth's surface is known, at least in its broadest aspects, and the evolution of the higher groups from forms like those in the lower ones is a matter of the greatest probability.

When we find, therefore, in the embryos of the higher animals structures that are peculiar to the lower adult forms we have sufficient evidence to warrant a careful consideration of the facts. A few examples will suffice to illustrate my meaning.

In the development of the chick we find a solid cord of cells, the notochord, extending along the entire length of the embryo on the dorsal side beneath the nerve-cord. The simplest form of living vertebrate, *amphioxus*, has a similar notochord in the same position; and we find in all the forms standing between the chick and *amphioxus* the same notochord appearing in the embryo. The similarity of the cord in the different forms, and its presence in intermediate forms makes it highly probable that there is an historical connection between the series. Whether the notochord in the embryo of the chick is a repetition of the notochord of an adult form like *amphioxus*, or whether the notochord of the chick is to be compared only with the notochord in the embryo of *amphioxus* are questions that will be considered a little later. It may be added here, that the notochord appears as early in the embryo of *amphioxus* as in the chick, and, if comparisons are to be made, it may be well to keep this fact in view.

We find in later stages of development of the chick that an investment of middle-layer cells is formed around the notochord and nerve-cord, inclosing them in a continuous mantle; and somewhat later the notochord begins to disappear at intervals where it is encroached upon by the investing sheath, and the sheath develops into a cartilaginous structure that breaks up into a series of blocks or *vertebræ*. This is also the condition of the backbone of the cartilaginous fishes. In later stages bony tissue forms in the cartilage, and we have a condition like that in the *amphibia* which leads to that of the adult bird.

We find similar relations in other parts of the body of the embryo chick. The heart begins as a simple, straight tube beneath the pharynx, it then bends on itself, so that the posterior end is carried forward, and we see a stage not very different from the heart of the shark. Later, partitions appear in the tube, that divide it into right and left sides, but the partitions are, for some

time, incomplete, so that a double circulation does not exist, and this condition we find in some of the groups below the birds.

The most striking embryonic organs that bear a resemblance to the lower forms are the gill-slits and gill-arches with their contained aortic arches. There appears in the chick embryo during the second and third days of incubation a series of vertical slits on each side of the pharynx, and some of these open so that the cavity of the pharynx communicates, on each side of the neck with the exterior by means of the series of slits, or gill-clefts. In the arches between the slits we find blood-vessels, that lead from the anterior end of the heart, through the arches, to the dorsal side of the pharynx, where they empty into the dorsal blood-vessel. In later stages the gill-clefts disappear and most of the aortic arches. It is obvious that we have here appearing in the embryo of the bird, a system of organs exactly like that found in fishes and amphibians by means of which the blood in the gills is aerated by water taken in by the mouth and passed outwards through the gill-slits. The chick enclosed in its egg-shell, obviously can not make use of its gill-system, and we find in later stages that the gill-slits disappear. Almost all embryologists have compared this system in the chick with that of the fish and amphibian adult stages, and speak of the repetition in the chick of an ancestral stage through which the birds have passed. I wish, however, to draw attention to the fact, that in the embryos of both fish and amphibia we have gill-slits appearing at a very early stage, as early, in fact, as in the chick; and the comparison between these early stages in both series is just as obvious as between the stages in the embryo bird and the adult fish and amphibian.

One further illustration may be given. It is said that at one stage in the development of the chick the rudiments of teeth appear in the beak, but subsequently disappear. It is known from fossil remains that at a period before the modern birds appeared there existed birds having reptilian teeth; and we also know that both fossil and living amphibia and fish have teeth. The appearance of teeth in the embryo-bird is generally interpreted as

a repetition of the condition of the ancestral birds, but it will be obvious, that since only the beginning of teeth appear in the chick, we must compare them not with the teeth of the adult ancestor, but with the embryo of that form.

These illustrations will suffice to give an idea of the historical problem that we meet with in the development of the higher vertebrates. The more naïve interpretation of these facts is, as we have seen, that during development the embryo passes through a series of stages that are like the ancestors of the birds. Haeckel is the greatest living exponent of this extreme form of statement. Other embryologists are contented to state that in the development of the bird we find many structures like those of the ancestral forms from which the birds have descended; and nearly all embryologists add, as a corollary, that there are also present in the embryo-bird other structures that were not present in the ancestors, but are peculiar to the embryo; and even that the ancestral features may be entirely lost under certain conditions. Most of the embryological work of the last twenty-five years has been inspired with the idea of determining what characters of the embryos of each group are ancestral, and what are embryonic only. If any criterion could be found by means of which the two kinds of structures could be separated, then embryologists hoped to reconstruct the past from the embryos of living forms. It must be confessed that up to the present moment the results have been discouraging, as no certain criterion has been found. Leaving, however, on one side this possible deduction from the facts of embryology, let us address ourselves to a further examination of the relation between the embryo and the ancestral series of adult forms. Can we not apply here also the interpretation that I have discussed in connection with the historical problems in the division of the egg? Can we infer from the facts of observation anything more than that since embryos of all the vertebrates have many similar structures they repeat a common embryonic, ancestral form? They are alike, on this hypothesis, because in the eggs the same factors are at work, and produce the same structures; and they will be different just in so far as other

factors come in to change the action of those present at first. These changes may, moreover, come in the embryos of the lower forms as well as in those of the higher forms. From this point of view we need not discuss whether the gill-slits in the chick are useful or the reverse, since with them the chick is still able to produce a bird without gill-slits, and we can readily imagine how the same goal might be reached without the gill-slits appearing at all. The presence of the gill-slits in the embryo is accounted for on our hypothesis by the presence of similar factors in the egg of the bird and of the fish; and the historical side of the problem leads us to conclude that the presence of these same factors is connected with the common origin of the fish and the bird, or in other words that they are both parts of the same material that has been handed down from the past.

It is unquestionably true that most modern embryologists have not been content to limit their conclusions to these statements, but have preferred to draw the more striking inference; namely, that ancestral adult structures themselves are repeated. I have no desire to avoid this issue, but I think the facts do not warrant our drawing such a conclusion, and I cannot protest too strongly against the Haeckelian method of stating that the phylogenetic series gives us a "mechanical-causal" explanation of the embryology.

There is one further point that I have not touched upon. If the similarity between the embryo of a higher form and of a lower form is carried out to a late stage in the development, then it may appear that the embryo of the higher form passes through the adult stage of the lower in so far as the late stage of the lower form is like the adult of that species. Hence, I think, may have arisen the usual statement, with its vague implications, that the individual development repeats the adult ancestral stages. If, however, we put the results in the form of statement that I have given above we remove, it seems to me, much of the mystical element of the so-called "biogenetic law," and have a legitimate interpretation of the similarity between the embryo of the higher form and the adult of a lower group, through the

embryo of the latter. Von Baer, in 1828, drew the conclusion from his study of the development of the chick that the embryos of animals belonging to the same group are like each other and follow the same method of development. The more nearly two forms are related, so much later in the development will the embryos of these forms be alike. This statement will not, at the present time, cover the facts that have been discovered. In the first place we find that the same method of development, especially of the early stages, may occur in widely different groups as in the annelids, molluscs, and turbellarians. In the second place we have evidence showing that forms within the same group, and supposed to be more nearly related to other forms in the same group than to any other group, may differ much more in their mode of development than two forms from different groups. For example, the squid follows a method of development totally different from that of the fresh water mussel, while the latter in its development has a large number of points of resemblance to the embryo of a marine annelid.

But the most profound difference between Von Baer's hypothesis and the more modern view is in the recognition by the latter of the similarities of the embryos being the outcome of a common descent. Moreover, the special deductions that I have drawn from the observations, that the resemblance is due to the same factors being present in both eggs, and the presence of these factors is connected with, but not necessitated by the historical continuity of the substance of the egg, carry us much further than does Von Baer's statement.

Another problem that is sometimes discussed is whether the eggs of two animals are at the beginning of development more like each other than are the adults, or whether they differ as much from each other as do the adults. A discussion of these two possibilities will not, I think, help the advance of embryology, but, on the contrary, will draw attention away from the real problems that need to be worked out at present; for, until we can find out how the structures of the adult arise from the egg, it is a waste of time to weigh the relative advantages of the two con-

ceptions. We can relegate the problem to the limbo of metaphysics and leave its discussion to those who delight in making subtle distinctions.

PART II.

In the preceding pages the problem of development has been examined from its historical standpoint. Around the conclusions hang all the doubts of the historical method. Granting that present forms have come from others living in the past, and that the organic chain has never been broken, still the historical method can at best only decide as to what is in a given case the more probable view; and since it is beyond our power, either to reverse the process of evolution or to repeat it, there is no criterion by means of which we can decide with certainty in regard to any conclusion, however probable it may be. The need of a different method has made itself felt more and more, as embryologists have become convinced of the incompleteness and uncertainty of the historical side of the problem.

Observation of the series of changes through which the egg passes to become the embryo is necessarily the first step, whatever method may be subsequently followed. As a result of direct observation we might infer something of the mechanism by means of which certain changes take place. For instance, the fibres of which the spindle of the egg is composed have been observed to shorten as the chromosomes separate; and it has been inferred that they are contractile and pull apart the chromosomes. Likewise the fibres that radiate from the poles of the spindle have been supposed to bring about the division of the egg. The folding of certain parts of the embryo after the germ-layers have formed has been ascribed to differences in the amount of water, or other fluids absorbed by certain parts, causing the layers to bend in or out according to the local conditions. Here we find embryologists approaching the problems of development from an entirely different standpoint. The egg is looked upon as a physical mechanism of extreme complexity, and an attempt is made to analyze the changes into their component elements,

i. e., to determine the factors that lead to, and complete each successive event of the development. But here also we find that however probable the conclusions may be, there always remains a doubt that can not be removed, so long as the method of observation alone is used. The results may have the appearance of greater exactness, since the conclusions are stated in physical and chemical terms, but we have here no new method, but only a different set of problems to study.

It may appear that the embryologist is doomed to disappointment in whatever direction he turns, but there remain to be examined the results of another method by means of which the study of embryology may be approached. I refer to the method of experiment.

The physicist and the chemist have found, that the only method by means of which they can establish their principles, i. e., the sequence of connected phenomena, is by means of experimentation. An intelligent understanding of the purpose of the experiment must, of course, precede the attempt to alter the conditions in such a way as to determine which changes in the complex are dependent on each other, and which are only concomitant. The more complete our information gained by observation, the more intelligible will be the application of the experimental method. In fact, without preceding knowledge of what is to be done, the experiment can have very little value, unless, as is sometimes the case, the right method is hit upon by a happy chance, and the connection of events made evident.

The application of experiment to the solution of the problems of embryology is not new, but within the last fifteen years a much larger number of workers have made use of this method, and with some success considering the difficulties to be overcome.

One of the earliest applications of the experimental method was made in order to determine whether the active element in the seminal fluid, the spermatozoön, brings about the development of the egg, or whether the spermatozoa are simply parasitic protozoön-forms found living in the male fluid. To determine this point Spallanzani separated the spermatozoa from the fluid by

means of a filter, and the fluid was then applied to unfertilized eggs. It was found that the eggs did not develop, while the same fluid with the spermatozoa left in it, and also the spermatozoa left on the filter, when applied to the eggs started the development. We now know from direct observation, that a spermatozoön enters the egg; but at the time, when Spallanzani made his experiment, this could hardly have been ascertained by observation alone with the methods and instruments then in use.

The more recent study of embryology by means of experimental methods dates from Pflüger's paper, in 1883, on the effect of gravity on the segmentation of the frog's egg. Pflüger's attention was drawn to the fact that the first and second divisions of the frog's egg are vertical, and the third division, that lies at right angles to the two preceding, is horizontal. The experiments were made in order to determine if there exists any connection between the factors that bring about the division of the egg and the force of gravity. The normal egg rotates freely in its membranes after fertilization, and, owing to a difference in weight, or specific gravity, of its black and its white hemispheres it turns so that its black pole is upwards, and its white pole is downwards. The first division of the egg starts at the upper pole, and the plane of division passes vertically downwards through the egg, dividing it into halves. The second plane of division also begins in each half in the upper part, and passes vertically downwards, so that the egg is divided into four similar quadrants. The third planes are horizontal, and in each quadrant the plane separates an upper, somewhat smaller, dark part or cell from a lower, larger, white part. The subsequent divisions are not so regular, but in general it may be said, that in the black hemisphere the division takes place more rapidly than in the lower hemisphere.

In order to find out if gravity plays any part in determining the position of the division planes, Pflüger tried turning eggs into different positions before the division or cleavage of the egg takes place. The egg is prevented from rotating in its membranes by adding only enough water to allow the spermatozoön to enter, but not enough to allow the egg membrane to swell as much as

under normal circumstances. In consequence the membrane presses upon the egg and keeps it in any position in which the egg may be placed.

If gravity, which always acts vertically, determines the position of the division planes, then in an egg with the dark hemisphere turned to one side, we should expect the first division to appear at the top of the egg, and pass vertically downwards, and not to appear first at the black pole as in the normal egg, since this now lies at one side.

It was found that the first plane of division begins at the highest point of the egg irrespective of what part of the egg may lie in this position. In fact, the first plane of division may, in some cases, divide the egg so that the black hemisphere may be separated from the white hemisphere. The second plane of division is also vertical, and the third horizontal. The results seem to show that gravity is a factor that determines in some way the position of the planes of division of this egg.

A normal embryo develops from these eggs; and Pflüger concluded that since the egg may be divided in all sorts of ways in response to gravity according to the position in which it is placed, and since a normal embryo is produced that bears no relation to the planes of division, there exists no causal relation between the cleavage and the position of the embryo on the egg. This conclusion, it will be noticed, is not necessarily connected with Pflüger's conclusion that gravity determines the position of the planes of division; and while, as we shall now see, this latter conclusion is, in a sense, erroneous, the other conclusion, in regard to the relation between the embryo and the cleavage planes, is one that has been confirmed and has an important bearing on later work.

A year later Roux put Pflüger's conclusion, in regard to the action of gravity, to a new test. Fertilized eggs of the frog were placed in boxes, and these were put on a rotating wheel. When a certain velocity of rotation was given to the wheel, the eggs that were free to move in their membranes turned so that the heavier white hemisphere was directed outwards, i. e., they orientated themselves with regard to the centrifugal force instead

of the force of gravity. The eggs as they rotate will, of course, at every moment, change their relation to the direction in which gravity acts on them. The planes of division appear in these eggs as in the normal, and consequently can not be the result of the direction in which gravity has acted on them, because the relation has not been constant. Since, however, the new planes of division now stand in the same relation to the centrifugal force of the revolving wheel, as do the normal planes to the force of gravity, it may be supposed that the former has been substituted for the latter. It was, therefore, necessary to change the experiment in such a way, that neither the force of gravity, nor the centrifugal force acted in the same direction on all the eggs. It is possible to do this by making the wheel rotate more slowly, so that the eggs do not orientate themselves in regard to the centrifugal force, but lie in whatever position they may happen to be placed. Under these circumstances, Roux found that each egg divides in the same way that the normal eggs divide; and since some eggs have one position and some another in regard to the centrifugal force, and since the eggs have changed at every moment their relation to gravity, it is clear that the egg may divide without regard to either of these factors. It is highly probable, in consequence, that there is only a coincidence, and not a causal connection between the position of the cleavage planes in the normal egg, and the action of gravity on the egg.

Pflüger's conclusion from his experiment is shown to be erroneous; but Roux's results leave unexplained the facts that Pflüger observed in the obliquely-turned eggs.

A series of experiments made in the same year, 1884, by Born, give us an insight into the meaning of the cleavage of the eggs in Pflüger's experiment. Born examined by means of sections the interior of eggs placed and held in oblique positions, and found that a slow rotation of the contents takes place in such a way, that the lighter parts of the egg move toward the top of the egg, and the heavier parts move to the bottom. In consequence of this change, the contents of the egg assume the same position in regard to the vertical as the normal eggs. Division of

the egg begins at the highest point, i. e., at the top of the egg, and passes thence through the egg, dividing it into equal portions, therefore passing downwards through the heavier part of the egg. Gravity has acted on the egg in such a way, that a rearrangement of the contents takes place, so that the lighter parts move upward, and the heavier parts downward. The relation of these parts to each other in the egg determines the cleavage; and gravity is not connected with the division, except in so far as it brings about a rearrangement of the lighter and heavier parts of the egg before division.

Pflüger had overlooked this change in the interior of the egg, because the outermost layers of the egg do not take part in the rotation, and the egg appears to retain the position in which it is turned; but this, as Born's results show, is only true for the harder, denser, outer layer of the egg.

The second conclusion that Pflüger drew from his experiment is not upset by the disproof of his conclusion in regard to the action of gravity; for even admitting a rearrangement, more or less complete, of the contents of the egg, still the position of the embryo in the obliquely-turned egg was found to bear no relation at all to the position in which the cleavage planes appeared. This part of Pflüger's results has not as yet been questioned. The conclusion is all the more striking, since, as first determined by Newport, in 1851, the first plane of division of the frog's egg corresponds, in many cases, in position to the later median plane of the embryo.

This series of experiments is, I think, instructive as giving an insight into the experimental method. We see that wrong conclusions may be drawn from experiments, but we also see that the method gives us a means of testing the conclusions themselves; in fact, the scientific value of the conclusions will be, in general, directly in proportion to the extent to which they may be tested. We can not overestimate, I think, the practical side of the experimental method, in the sense that the results attained will have just so much value as scientific data, as they can be further tested by the experimental method itself.

We may next examine another series of experiments, that have profoundly influenced our ideas in regard to the problems of development. Omitting all details, and giving only the general outlines of the experiments, the facts are as follows: Roux, after independently discovering that the plane of first division of the egg of the frog corresponds, in many cases, to the median plane of the embryo, tried the experiment of injuring one of the first two cells, in order to see if the uninjured half would produce only half of the normal embryo. By piercing one of the first two cells with a hot needle he delayed in some cases, prevented in others, the development of the injured half. The uninjured part continued, nevertheless, to develop, and produced exactly half of the normal embryo. Roux thought his experiment showed that, at the first division, the egg divides qualitatively into the material to form the right and the left halves of the embryo. He concluded, also, that at each further division of the cells of the egg, there is a qualitative separation of the material. This conclusion it will be observed is diametrically the opposite of that which Pflüger formulated. Roux's conception is the basis of Weismann's speculation as to the method of embryonic development, and it will be profitable to give a somewhat detailed examination and criticism of this view.

We may consider Roux's idea of a progressive differentiation during development, either from the narrower standpoint from which his adversaries have attempted to treat it, or if we like from a broader point of view. In the former respect, more recent results have not confirmed Roux's conclusion; but in the latter, his idea of a progressive differentiation has, to a certain extent, been established.

Roux attempted to show how the qualitative division of the egg is brought about. He pointed out that the spindle that is formed during each cell-division, and by means of which the separation of the chromatin takes place, is an instrument by which we can conceive a qualitative distribution of the chromatic material to be accomplished. The chromatin is looked upon as a substance bearing the essential qualities of the individual, as is demonstrated

by the inheritance of the characters of the father through the nucleus of the spermatozoön. This same idea of a qualitative separation at each division of the qualities of the chromatin is, as I have said, also the central idea of Weismann's hypothesis.

Subsequent discoveries have not been favorable to this conception. I submit the following facts that substantiate, I think, this claim. In certain eggs, in which the protoplasmic products of division are very unequal and where the division of the protoplasm is into different kinds, and the products of the division produce entirely different parts of the embryo, we find the chromosomes always dividing into exactly equal parts. Whenever the chromatin divides, the same kind of separation takes place, so that, so far as the evidence of direct observation goes, it is opposed to Roux's view. In the second place, as we shall see more fully a little later, each of the first two, or first four cells, in several forms, if separated, gives rise to an entire embryo and not to a half or to a fourth; and further in another experiment, in which a part of the protoplasm is removed from the egg, but the entire nucleus left, the egg develops into a part of an embryo, and not into a whole one.

Before we discuss further this view of a progressive differentiation during development, some further experiments that have a direct bearing on the question must be described.

The results of Roux's experiment on the frog's egg were complicated by the presence of the injured half of the egg that remained in contact with the developing half, and further, because the cell pierced by the hot needle is not killed, but only injured so that its development is either delayed or prevented. If, however, the process of development is not due to a qualitative division at the first cleavage, but is the outcome of a mutual interaction of the cells, then we can imagine that the injured cell might still react on the developing cell as though it also were developing. In fact, Roux himself thought that, in the later stages of development, an interaction of the parts must take place; and later Hertwig extended this view to the whole development. Although it has not been possible to carry out the experi-

ment of completely separating the first two cells in the frog's egg, yet in a related form, salamandra, Herlitzka has recently succeeded in completely separating the first two cells, and has found that each develops into an entire embryo. Even in the frog's egg it is possible to show that each of the first two cells may give rise to a whole embryo by a somewhat different experiment. If the egg is inverted, after the first cleavage is completed, and held in this position, two embryos fused together in different ways are formed. It appears that this result is due to gravity bringing about a partial rearrangement of the contents of each cell before the next division-planes come in; and in consequence of this rearrangement, each cell continues to develop as a single egg.

A few years after Roux's experiment, Chabry carried out a similar one on the egg of an ascidian. By means of an ingenious apparatus he succeeded in controlling the egg, so that he could pierce with a needle any particular cell of the embryo. The injured cell was, in many cases, completely removed. His results were not, however, as definitely stated as could be desired; and later experiments by Driesch, have shown that Chabry missed the real meaning of the experiment.

The next experiments in chronological order are those of Driesch, and his results occupy an important place in the history of modern experimental embryology.

By means of a method first used by the Hertwigs, Driesch succeeded in shaking apart the first two, (and also the first four) cells of the egg of the sea-urchin. Each cell continues to develop at first as though still in contact with its fellow, i. e., as a part, and not as the whole egg develops, and a hollow hemispherical embryo, open at one side, is produced by each isolated cell. So far the development has been strictly a half-development. Later, however, the open side closes in, and a hollow sphere is formed, which continues to develop as does the normal egg, and each produces at last a perfect embryo, but of half or fourth the normal size. The result is, in some respects, the opposite of that obtained by Roux, since a whole, and not a part of an embryo,

develops from each isolated cell. It must not be forgotten, however, that at first the development is strictly a half-development, and that only in the later stages a whole embryo is formed.

The experiment of separating the first-formed cells was soon carried out with the eggs of a number of other animals belonging to widely different groups, and while in some of these the results were similar to those with the sea-urchin, yet, in other eggs, different results have been obtained.

Wilson found, for instance, that, after separating the cells of the egg of amphioxus, the isolated cell sometimes divides as a part, and sometimes as the whole egg divides. The isolated piece responds, as it were, in some cases at once, and develops as a whole. There can be little question, I think, in the light of recent work, that very slight changes may determine whether an isolated cell may continue to develop as a whole or as a part, the result depending, perhaps, on the more or less symmetrical arrangement that the contents of the cell have assumed when division takes place. It would be a mistake, I think, to infer that there is any fundamental difference between an egg that divides as a part, and one that divides as a whole.

It has been found that if the first two cells of the egg of the ctenophore are separated each not only continues to divide as a part, but forms only a part of an embryo, that corresponds in many respects to a half-embryo. The egg of the ctenophore represents one end of the series, and that of amphioxus the other end.

It may seem that the half-development of the isolated cell of the ctenophore egg is a proof of the correctness of Roux's hypothesis; but there are some further facts to be considered that put the whole problem in an entirely new light.

If, after the egg of the ctenophore has been fertilized, a piece be cut off from one side of the egg, one of the pieces, that, of course, that contains the nucleus, may continue to develop; but it produces in most cases not a whole embryo, but a part of an embryo, resembling the embryo of this animal obtained from the first two, or the first four cells. In this case the entire nucleus is present, and yet only a part of an embryo develops. The

result is obviously directly connected with a loss of the protoplasm that represents the missing part.

In the light of this experiment it is evident that we can not interpret the partial development of the isolated cell as due to a qualitative division of the nucleus, but rather, as in the latter experiment, to the absence of half of the protoplasm. The most obvious interpretation of the experiment with the ctenophore egg is that the structure, or arrangement of the protoplasm, is of such a sort that it determines the mode of division of the egg, and even the formation of the embryo. In this egg there is no rearranging of the material of the egg after separation of the cells, or removal of a part of the protoplasm of the unsegmented egg. In other words, the form of the embryo is the outcome of the protoplasmic structure of the egg.

This view, held especially by Driesch and by myself, is diametrically opposed to the Roux-Weismann conception of the process of development.

It may be asked, how it is possible to harmonize this view with the well known fact that the spermatozoön brings into the egg very little, if any, protoplasm, but mainly a nucleus, and that, nevertheless, the embryo in its later stages may show characteristics of the father as well as of the mother. The contradiction is, I believe, only apparent.

At the present time, evidence is accumulating that shows that we can not regard the chromatin as something isolated in the cell; but that there is a free interchange of material between the nucleus and the surrounding protoplasm. As a result, the protoplasm will be, in time, affected by the kind of chromatic substance contained in each cell, and when the specific characters of the cells develop the influence of the chromatin, introduced into the egg by the spermatozoön, will appear. I may, therefore, state my conclusion in this way: that in so far as the protoplasm has, at any stage been affected by substances received from the nucleus, it will show this influence when it produces structures that are of the sort to be affected by the change in the protoplasm. Whether a half, or a whole embryo develops from an

isolated cell, or from a piece of an egg also depends on the structure of the protoplasm; but at this time the structure may have nothing whatsoever to do with the kind of material in the nucleus since this material is not of the sort to affect the half or the whole arrangement of the protoplasm.

This problem of the influence of the chromatin on the protoplasm, is a question that is at the present moment, receiving much attention on the part of cytologists and embryologists. Boveri carried out an interesting experiment by means of which the influence of the nucleus on the protoplasm could be tested. It is possible, as we have seen, to break the unfertilized eggs of the sea-urchin into pieces by shaking them violently in a small tube. The pieces subsequently round up, and while some will contain the female nucleus of the egg, others will be entirely without a nucleus. Boveri tried to fertilize the egg-fragments of one species with the spermatozoa of another species in order to see what influence the nucleus of the spermatozoön would have on pieces without an egg-nucleus. He found that from the fragments two kinds of embryos developed; most of them were midway in structure between the maternal and paternal types, and these he thought must have come from the nucleated fragments; a few were in structure exactly like the paternal type of embryo, and these Boveri thought came from the pieces without a nucleus that had been entered by a single spermatozoön. If this result could be completely established it would be most important, since it would show that the nucleus has greater influence on the character of the embryo, than has the protoplasm. This conclusion would not be, however, fatal to the view of development of Driesch and myself, since it must be freely admitted that the nucleus may influence the protoplasm. According to our view a part of an embryo would develop from a piece of the fertilized egg of the ctenophore or from an isolated blastomere regardless of whether the egg had been fertilized by a spermatozoön of the same, or of another species. The structure of the protoplasm that determines the form of the cleavage and even the form of the embryo, so far as it is incomplete, may not have any-

thing to do with the chromatin present in the nucleus, or at least not be influenced by it in this regard during development. If the egg had been fertilized by a spermatozoön of another species, and then the first two cells separated, we should expect, on our view, to get two half-embryos, but each half would be midway between the maternal and the paternal types, because there has been an interchange between the nucleus and the protoplasm of that kind of material that has an influence on the structures of the later stages of the embryo.

The value of the evidence on which Boveri based his conclusion has, however, been questioned. It has been shown that when entire eggs of the same species used in Boveri's experiment are fertilized by spermatozoa of the other species, while the majority of the embryos are intermediate in character, a small percentage are more or less nearly the same as the paternal type. Hence, as the same is probably also true for the nucleated pieces of the egg, Boveri's evidence is undermined, although the possibility that the non-nucleated pieces develop, as Boveri claims, still remains.

There is another series of experiments of a different kind that have given us important information in regard to the factors at work during development. Pflüger first showed that by compressing the frog's egg between two parallel glass plates the sequence of divisions, i. e., the position of the division planes is altered; the first three planes, at least, being at right angles to the compressing plates. The egg that has divided in this way will give rise to a normal embryo, either under pressure, or if the plates have been removed after the divisions have taken place. We have here two problems to consider; namely, the influence that the pressure has in determining the change in the division of the egg; and secondly, the production of a normal embryo from an egg that has divided differently from the normal.

The same experiment has been made on other eggs with the same result. The effect of compression is particularly well shown on the sea-urchin's egg, in which a flat plate consisting of a single layer of sixty-four cells has been produced. These flat plates, if

released from pressure, also give rise to normal embryos. Even in eggs in which a definite relation is known to exist between the first formed cells and definite parts of the embryo, a normal embryo may be formed after the cleavage has been altered by compressing the egg, as Wilson has shown for the egg of *Nereis*. Curiously enough it has been found, by Ziegler, that the division of the egg of the ctenophore under pressure is very nearly the same as the normal cleavage, and this result is all the more interesting in connection with the experiments described above on the method of development of pieces of this egg. The result bears out the assumption that the protoplasmic structure of the ctenophore egg is so fixed, i. e., so difficult to readjust that external factors have less influence on it than on other kinds of eggs.

Several hypotheses have been advanced to account for the change in the division of eggs under pressure, but none of them are entirely satisfactory. Pflüger first directed attention to the influence that pressure might have in determining the position of the nuclear spindle, and, in consequence, on the position of the plane of division that comes in at right angles to the long axis of the spindle. Pflüger thought that the spindle takes the position of least resistance, which would be parallel to the compressing plates. It has been objected to this view, that if the egg is a semi-fluid body enclosed in a more solid envelope the pressure would be equalized in all directions. Hertwig attempted later to give a formula along the same lines to cover the results. According to Hertwig's view the nucleus tends to assume the protoplasmic centres of the egg or of the cell; and the spindle, when it forms, assumes the position of the greatest protoplasmic mass. This hypothesis, while it seems to cover a number of observed cases, fails entirely in other cases. For instance, an egg compressed vertically in its plane of symmetry does not have a longer protoplasmic region except in so far as the egg is broader in a horizontal plane than in a vertical plane, but there are an infinite number of possible positions for the spindle in this horizontal plane, and some other factor must determine which one is to be chosen. The hypothesis will also not explain several cases in which the posi-

tion of the spindle is not determined by the direction of the greatest protoplasmic mass, but by some other internal factor. It may be stated, therefore, that as yet we do not know what factors influence the position of the spindle in the dividing egg.

The results of these experiments have an important bearing on the relation of the embryo to the egg, for, as has been stated, the embryo has a different relation to the position of the planes of cleavage in the compressed and in the normal egg. Of greater interest is the fact, that, owing to the change in the sequence of the divisions, the parts of the egg receive different nuclei (at least if the numerical sequence of the division of the nucleus is considered) than in the normal egg. If the series of division of the chromatin is into qualitatively different parts, as believed by Roux and by Weismann, we should expect to develop from the egg that has divided under pressure either a monstrous form, with all the parts combined in unusual ways, or else nothing at all, because of the dislocation of the elements. On the contrary, a normal embryo develops, which seems to demonstrate the incorrectness of the hypothesis of the qualitative division of the chromatin. If, on the other hand, we look upon the division of the chromatin as a division into like parts at every division, then it is a matter of indifference what particular product of the division is sent to each part. Further, if the planes of division of the egg also bear no necessary relation to the formation of the organs of the embryo, then, again, we find no difficulties for our view of development. Finally, if we look upon the entire protoplasm as the factor that determines the origin of the organs, we find this arrangement is, in all essential respects, the same whether the egg is compressed or not.

The results of the experiments with isolated cells show that the protoplasm of some eggs has even the power of rearranging itself into a new whole after a part has been removed, and this result we find paralleled by the power possessed by many embryos, and by a number of adult animals, of forming a new animal out of any piece of the old one.

Roux has tried to meet the difficulty, that his view encounters

in connection with these experiments, by assuming that the nucleus also responds to the change in its environment and proceeds to divide under compression in such a way that each part of the egg receives the same constituents of the nucleus as that part receives in the normal egg. The hypothesis has no observed facts to support it, and is obviously an attempt to cover a vital weakness in the primary assumption of a qualitative division. It assumes on the part of the nucleus a power to meet a difficulty that would puzzle the highest intelligence to work out; for, if at each division of the nucleus there is an unravelling of the qualitatives of the individual, it is certainly taking great liberties with the hypothesis to assume that in response to a slight compression of the protoplasm and a corresponding change in the nuclear spindle, that an entirely new sequence of qualitative divisions could take place at once, and of exactly the right kind for each part of the egg to get its proper nuclear constituents, i. e., that the qualitatively different nuclei shall stand in the same spacial relation to each other as in the normal egg.

The conclusions that Driesch and Hertwig have drawn from these experiments are, I think, the legitimate ones. According to their interpretation the early divisions of the nucleus are always into equal parts, and the daughter nuclei are all qualitatively alike, and like the nucleus from which they have come. The results of the division of the egg will be to distribute chromatic material to all regions. The changes that later take place in the different regions are not due to the kind of chromatin that each part has received, but to another factor, and this other factor is, according to the view of Driesch and myself, the structure of the protoplasm.

There is a further question of some importance that is not included in the foregoing statements. Do the nuclei always remain alike or do they also suffer a change as development proceeds? There is a good deal of evidence to show that, in most animals, only in a certain region of the embryo are all the qualities of the original egg retained i. e., in the reproductive cells; and that the other cells of the body have lost, to a varying degree, the toti-

potence of the early cells. It is difficult to decide whether this change is only due to a change in the protoplasm, or whether the nuclei have also undergone a progressive change. If there is, as I have supposed, an active interchange between the protoplasm and the nucleus, we can readily conceive that the nucleus may in time lose certain of its earlier possibilities. At present the evidence is insufficient to establish this view; but it seems not improbable that it may turn out to be correct.

There remains, finally, to be discussed a point that has scarcely been touched upon in the preceding pages, although it is connected with some of the phenomena already discussed. The egg is, before fertilization, in nearly all cases radially symmetrical around a principal axis, yet in many cases a bilateral embryo develops from such an egg. The question arises as to what factor changes a radial structure into a bilateral one. If an external factor, what can it be? If an internal one, it must be present from the beginning; and if so, the appearance of a symmetrical structure in the egg is deceptive. The results of observations have shown that in certain eggs, having a definite bilateral form, as the eggs of certain insects, the embryo appears orientated in a definite position in the egg. It may seem that the bilateral form of the egg itself determines in the later stages the bilateral form of the embryo. It must not be overlooked, however, that the bilateral form of the unsegmented egg is itself the result of an internal bilateral structure, since the egg has made its own form during its growth, and its form has not been determined by the surrounding conditions. This internal factor may, or may not, be connected with the factors that produce the bilateral embryo.

Roux was the first to attempt to show that an external factor might determine the median plane of the egg of the frog. By means of a fine pipette, filled with fluid containing spermatozoa, he set free the latter at a definite point near the surface of the egg. This point was noted, and it was found that subsequently the first plane of division passed through the point of fertilization. Since, in the frog's egg, the first plane of division corresponds more or less nearly with the median plane of the embryo, the fac-

tor that determines the position of the embryo in the egg is the point of entrance of the spermatozoön. We may then look upon this egg as in reality radially symmetrical around a principal axis, and an external factor determines the position of the embryo. The bilateral embryo does not exist preformed in the egg, in any sense, for there are present in the egg before fertilization an infinite number of possible planes, any one of which might become the median plane of the embryo. Around the principal axis any part, at a given level, may form the same part of the embryo, and the fate of each part is determined by the selection of the median plane of the embryo. The results show, in a most striking way, that we can not project, in imagination, the embryo upon the unfertilized egg for the latter contains the possibility of an infinite number of embryos, and an external factor decides which one shall be chosen.

The first plane of division, as we have seen, passes through the point of entrance of the spermatozoön, and also through the centre of the egg and the highest point of the black hemisphere. It may seem strange that the point at which the spermatozoön enters the egg should play so important a rôle in the subsequent development; but we have at present other observations that indicate that it is not the point of penetration itself, but that this is connected accidentally, as it were, with other factors, and the latter determine the position of the first plane of division. The male nucleus on entering the egg passes towards the centre of the egg and towards the female nucleus; the two nuclei come in contact, flatten against each other, and subsequently fuse into a single sphere. We have some direct evidence, in other eggs, to show that the chromatin material of the two nuclei, although it fuses, does not mix. When the spindle develops it assumes a position midway between the male and female halves of the nucleus; or, in other words, if the nuclear halves do not change their position after fusion the spindle will lie at right angles to the path of entrance of the spermatozoön in a horizontal plane. After the separation of the chromosomes the first plane of division of the egg which passes

through the middle of the spindle, will be, therefore, also in the path of entrance of the male nucleus, and cut through the point at which the spermatozoön entered the egg. This analysis of the problem, for which I must assume the responsibility, gives us a deeper insight into the relation between the first plane of cleavage and the fertilization of the egg. We also see that the correspondence between the point of entrance of the spermatozoön and the median plane of the embryo need not exactly correspond, (in fact Roux and others have found that the correspondence is not always exact) and still the explanation that I have offered will hold, for should the male nucleus not enter in a straight line, or should the segmentation nucleus shift its position the plane of division will correspondingly change, but the factors that determine the division plane remain always the same.

In the preceding pages I have attempted to give a general idea of the problems of development that are engaging the attention of working embryologists at the present time. My main purpose has been to show what the results of the historical method have been as contrasted with those of the experimental method. I do not see the necessity or the advantage of weighing the relative merits of each method, for so long as we admit that there are problems of both kinds, we may rest assured that certain problems will appeal to certain minds, and other problems to other minds; and if I choose to think that the experimental method is the most profitable method, I am willing to admit that the study of embryology might be undertaken even from an artistic point of view,—and with success!

The main theme of discussion of embryologists during the last century, and the present century as well, has been the relative importance of preformation versus epigenesis. By preformation it was formerly meant that the embryo exists already formed in the egg in miniature; and that its development is simply a question of enlargement, as the child becomes a man. This view was held by nearly all the eminent embryologists of the last century. In opposition to this conception Wolff attempted to show that the chick does not exist preformed in the egg, but arises out

of two flat plates or layers that roll themselves up into the form of the chick; that the development is from a simple condition to a more complex one, that it is a process of building up, or epigenesis.

In the present century the idea of epigenetic development, as enunciated by Wolff, has been entirely accepted; but the idea of preformation has assumed a new form in the hands of modern thinkers. It is assumed by certain modern embryologists, of whom Weismann may be taken as an example, that there exist in the chromatin of the egg certain bodies that correspond to each character of the individual, and that the process of development consists in the sorting out of these bodies to the different parts of the egg. There they act on their respective regions and cause them to develop into their respective organs. Thus the parts of the embryo exist in the egg, and may have even a definite relation to each other, although not necessarily in any way corresponding to the relation of the parts of the later embryo to each other. In other words, not a miniature chick, but the elements of the chick are preformed. This is modern preformation.

On the other hand, other embryologists claim that it is erroneous to suppose that the egg contains any such preformed bodies; but that the development is the result of a series of changes becoming more and more involved as the stages are passed through. The egg may be looked upon as a very simple structure as compared with the chick, but its qualities are of such a sort that once started into activity they produce by their interaction a complicated result. This is modern epigenesis.

A number of embryologists maintain that both views contain an element of truth; that certain very definite qualities must be present in the egg, for, unless this were the case, the end-result would not be as definite as we find it. To them it seems inconceivable that all the eggs of an individual could produce such similar end-results, unless an extremely complicated structure of some sort were present at the beginning.

It seems to me that we have inherited, in this question of preformation versus epigenesis, one of those delicately balanced

notions of the school-men ; and that we might go on to the end of time discussing the relative merits of the two *ideas*. The results of the study of embryology from the experimental standpoint show us, I think, where we can profitably direct our energies ; and it is my personal opinion, that the sooner we drop the questions of preformation versus epigenesis the better for the future study of embryology. We have seen that at each stage in the development of the egg a large number of problems present themselves for our further examination. It is the separation of the factors of development into their components by means of an experimental test, that demands our attention. Hertwig has set up the paradox that each stage in the development is the cause of the next stage, and maintains that in a description of the series of stages through which the embryo passes we find the causal explanation of the development. If Hertwig had stated that at each stage there exist in the embryo the factors or causes for the following stage he would, I think, have been nearer the mark. Our object is to separate these factors into their components ; in other words, there is no one problem of development, but a vast number of connected problems.



CHILD-STUDY AND EDUCATION

JAMES SULLY, *London.*



ONE of the curious manifestations of the eagerness of our inquiring age is the amount of organized activity now directed to a better understanding of its children. In a journal published in America there is no need to illustrate the rapid extension of this field of activity. In the number of her societies and of her publications devoted to child-study she is *facile princeps* in the competition of the nations. England and France, though a long way behind as seconds, are accelerating their pace, while even more cautious and exacting Germany has now joined in the race.

The results of this new movement are conspicuous and striking. Young teachers, and even older ones, whose days might have been supposed to be sufficiently employed, are to be seen rushing to lectures on child-psychology. London is at this moment supplying these with quite a number of lectures in the shape of University Extension Courses. Nor is it merely the teachers who have thus been seized with a passionate resolve to acquire the new lore. Many young parents will be found to be no less ardent in the cause. One hears occasionally of a newly married pair, at the moment when thought is apt to be concentrated on the finer economies, having its mind much exercised as to whether the first big luxury shall be a volume on child-study. It looks, indeed, as if the expression "*enfant terrible*" were acquiring a new meaning. Through no act of his own, the child is taking the place of the last of our tyrants; claiming through

his advocates our cession of that small remnant of repose which the other tyrannies of our age had left to our homes.

There is much in this devotion of adult intelligence to childhood which is amiable and even commendable. It is the outcome of our modern rendering of Juvenal's maxim: "*maxima debetur puero reverentia.*" It is a vast improvement on the custom of our predecessors, to put children as far as possible out of sight. It is perhaps well that we should have an idol; and there are many worse forms of idolatry than child-worship. It is pleasant, too, to see parents and teachers coöperating in work which concerns itself with children, for in the past such coöperation seems to have been, to say the least, uncommon.

When, moreover, we look at the work done, we cannot but feel a certain admiration for the industry shown, and for the quality of much of its products. We find, for example, a number of careful records of the development of individual children, of which Miss Shinn's "Notes" may be taken as an excellent example. Then we have a quite bulky volume of collective or statistical observations carried out on large numbers of children, and commonly through the coöperation of a number of observers. These observations range over a variety of subjects, among which may be named children's ideas about natural objects, God, and so forth; their preferences for persons, real or fictitious; their ways of behaving towards their dolls. Some of this statistical work may lay claim to a more scientific character. This holds good, for example, of the numerous inquiries carried out on school children with respect to the way in which rate and quality of mental work vary with prolonged effort and the oncoming of mental fatigue. While in this way information respecting the characteristics of children has come from others' direct observations of them, young persons have been invited to give their own account of their ideas and feelings. This branch of the work has aimed at making use of the reminiscences of the first years while they are still fresh and distinct. This, too, has naturally taken on a statistical form, and has been carried out in close connection with the observations of numbers of children.

One's temptation in view of all this new activity, so rich in promise, is to rejoice that a long neglected and fascinating subject of study has at length won the attention due to it. The attitude of the enthusiast seems here to be eminently natural and justifiable.

Yet the prosaic realities of life are apt to deal roughly with young enthusiasts, even when their objects are of the worthiest. To the enthusiast, ardent, impatient, preoccupied with the idea of the absolute rightness of his aims and his methods, there opposes himself the cold, calculating critic. The zeal of the child-student has not escaped this irritating obstacle to its advance. The tester of the values of knowledge, and of the methods of pursuing it, has challenged the newcomer and bidden him halt on his road. The challenge is being naturally enough resented by our eager on-pushers. And so there has arisen a situation of considerable dramatic interest. Fervent amateurship finds itself in sharp antagonism to the exactions of the expert. The latter takes his stand on what he regards as the high demands of true science, and is inexorable; the amateur, tenaciously clinging to his cause and his own ways of furthering it, is disposed to regard his assailant as a troublesome interloper.

Those who seriously try to take a fair view of the crisis will be ready to admit that notwithstanding the many good things achieved by child-study it can hardly hope to avoid the critic's salutary castigation. It is, alas, the way of enthusiasm to swell into turgid exaggerations, disproportionate estimations and expectations. Further, it is to be looked for that a movement like child-study, which has broadened out into a wide, popular current, should take on something of shallowness here and there. The ill-prepared amateur has been rather too prominent, the scientifically trained student not prominent enough. Given fervid zeal and defective training in the student, any study is pretty sure to yield a certain crop of absurdities; and the worst of it is that when a movement like child-study has gained volume and momentum, the guiding hand of the connoisseur, even when gently prof-

ferred, is wont to be roughly declined as a restraint. Critical advice will be rejected as "uninspiring."¹

It is appropriate that the critical challenge of the new research should come from the country where the devotion to the study is at its hottest. Professor Münsterberg, of Harvard University, has recently disputed in a very decided and energetic fashion the whole of the alleged value of the new child-study. The title of his essay, "Psychology and Education,"² shows that his aim is a wide one, namely to demonstrate that not only child-psychology but psychology as a whole can have no direct bearing on the teacher's work, and, therefore, should not be studied by him.

The Professor's argument may be summarized as follows: psychology consists of one science only, general psychology, which is concerned exclusively with reducing by analysis mental processes to their elements. This "atomizing" of mental facts seems to our author to be exclusively the work of psychological laboratories. Every step in the progress of our science (he writes) was dependent on the most patient, laborious, work of our laboratories. There can, consequently, be no separate department of child-psychology. So far as any study of the undeveloped mind of a child is needed it is to be carried out as a part of general psychology by trained theorists who are able to apply the view of mental processes gained by the analysis of their own developed minds. The writer speaks as if such a theorist would be able to construct a child's mind by help of the theory thus acquired. At best, he seems to me to set no store on a special observation of the characteristic activities of children's minds. As to collections of observations respecting their sayings and doings he seems to think it mostly if not altogether "stuff" (does he mean "stoff" or mat-

(1) The present writer once enjoyed what must have been a rare privilege. He was travelling in a train the day after he had given an address on the methods of child-study. Two ladies in the compartment, one of whom at least appeared to have heard the address, began to talk quite freely, without a suspicion of his presence, about the "uninspiring" character of his critical remarks.

(2) See the (American) *Educational Review*, September, 1898.

ter?) and "rubbish" which has nothing to do with science. He is especially hard on the statistical lines of inquiry associated with the names of Stanley Hall, Alfred Binet, Earl Barnes, and others. *Apropos* of the inquiries into the "contents of children's minds," i. e., their stock of ideas, when they enter school, he writes: "It is not scientific botany to find out in whose yard in the town cherries, in whose yard apples grow." He deems it quite as absurd to ask how many children know what "moon" or "cow" stand for as to start a "questionnaire" among adults of the form: "Have you ever seen a photograph?"

It is worth noting that the writer makes one exception to his rule that the work of observing children's minds has no place in psychology; he admits that it may be worth while to observe the deviations from the normal type of process in the case of abnormal children. This certainly suggests, what seems otherwise to be implied, that the scientific psychologist knows *a priori* all about the behavior of a normal child's mind, and so does not need to enter on any special, direct study of its characteristic behavior. Child-study, then, does not constitute a separate branch of psychology, nor does it seem to be needed as a special method of inquiry within the area of general psychology. As carried out by untrained amateurs who make the bulk of our child-study unions and associations it is worse than useless.

But this is not all. Professor Münsterberg waxes bolder as he proceeds, and denies that a proper study of scientific psychology can be of any direct use to the practical educator. The "atomizing" method of psychology which pulverizes the living child into atoms,—apparently sensations,—is opposed to the proper attitude of a teacher who must regard the child from a teleological or ethical point of view as a unity. The writer admits, however, that psychological principles may become of value to the teacher when worked up into the form of practical ideas (*axiomata media*?) as parts of a general theory of education. He admits further that certain lines of experimental work, which are to be determined by the expert in educational theory, and to be carried out in our psychological laboratories, may prove valu-

able contributions to the theory of education. If the teacher wishes to teach the sacred science of psychology at all, he must do so *after* he has assimilated this theory of education.

The attack on the enthusiastic band of child-students by so well known a worker in the field of experimental psychology as Professor Münsterberg, has certainly an alarming look. To be told that you are building on another man's land, and that what you suppose to be architecture is nothing but a rubbish-heap, that no such structure as you propose to erect is physically possible, and lastly that were it practicable you would gain not the slightest profit from it, is an experience that may well try the most patient of tempers. If the Professor is right, and child-study is as foolish a thing as he contends, one must admit that the spectacle of the earnest, hard-working company fated to be suddenly disillusioned in this fashion is a pathetic spectacle.

Yet the thoughtful reader will pause before he admits that the cause attacked with such brutal energy is a lost one. If one is prepared to find the young, impulsive students over-estimating their performances, one is prepared also to find exaggeration in a criticism which is, on the face of it, sharply antagonistic and unsoftened by a single trace of sympathetic appreciation. Condemnation *in toto* of this kind is, one suspects, rarely if ever perfectly fair. The exaggeration of enthusiasm is not infrequently opposed by another sort of exaggeration, that of the claims of narrowly conceived rules, of what we call pedantry. Is there any of this exaggeration in the distinguished Professor's essay?

I fully recognize the strong points of this piece of criticism. Professor Münsterberg is too good a psychologist not to write instructively on such a subject as the relation of his science to education. His essay well deserves the place of honor given it in the excellent review in which it appears; and teachers will do well to read it for the sake of the many good things it contains. All the same, I find myself forced to say that as a destructive criticism of the *raison d'être* of child-study it appears to me to be a failure. If this is the worst that can be said of the new study,

its continued existence and prosperity are not, I think, seriously threatened. Professor Münsterberg's critical estimate of its aims and methods has at once the advantages and the disadvantages of all criticism *ab extra*. If it is free from the narrowness of view, from the mists of blind tradition, which are so apt to give to criticism from within its poverty and staleness, it is burdened to an unusual extent with the defects which spring from want of familiarity with the subject dealt with, and, one must add, from an incapability to put one's self at the point of view of those whose ideas are being criticized.

I have said that Professor Münsterberg is an eminent psychologist, yet I must begin my account of what I regard as his exaggerations with a critical remark on his view of the province and methods of psychology. It seems to me for one thing, to be very far from the truth to say that the analytical work in general psychology is carried out altogether in our laboratories. A glance at any recent work in general psychology, say that of Professor James Ward, or Professor W. James, will satisfy any one that a very large part of the analysis of mental processes has still to be carried out by the old method of introspection. This, however, is a comparatively unimportant exaggeration. A much graver one is contained in the assumption that general psychology investigates only by way of the analytical method. If there is one feature more than another which characterizes the later development of psychology, it is surely the supplementing of the idea of analysis by that of synthesis. This has come through the recognition of the truth that mind is something living and growing; and that just as little as anatomical and physiological simplification will give you the living organism without a synthetic consideration of the life of the organism as a whole in the intricate interaction of its several processes, and further, without a theoretic account of the gradual changes which make up development and decay, so little will psychological analysis give you the living, developing mind without a theory of mental functioning in its wholeness, and without a theory of its gradual development, which last is the special work of "genetic" psychology.

One of the most striking illustrations of this growing interest in the concrete process of mental growth, is the prominence now given to the doctrine of apperception. This doctrine, derived from Herbart but modified by some of his disciples, and still more by Stout in England, seeks to explain the gradual expansion and organization of intelligence by the biological conception of a process of assimilation of new material, having as its result a transformation of preceding intellectual products as well as of those mental attitudes which underlie our recognition and understanding of what we see. Now this valuable theory is precisely a theory of the growth of intelligence. It belongs to the synthetic and not the analytic part of psychology. Hence its importance has been shrewdly discerned by teachers not only in Germany but in America and in England. The old psychological theory that the mental life began as a chaotic whirl of distinct psychical "atoms" or sensations which gradually settled down by some mechanical process of association into orderly clusters is exploded. We know now that it begins with functional processes identical with those which in their later and more complex form we call by such names as thinking and willing. In other words we see that the development of a human consciousness is brought about by a perfecting of functional activities reacting on an ever growing material or "field of presentation." It may turn out that the needs of the educator have not only been better met by this substitution of a biological for a mechanical conception (of that of a *growth* for that of a *making* of intelligence); but that these needs have had something to do with bringing about the change is psychological theory.

Now it is the introduction into psychology of this biological idea of growth with its differentiation of material and other functional processes, that has forced psychology to stoop to a careful examination of children's mental processes. As long as you could think of a child as a kind of statue endowed with a number of senses, the impressions of which could build themselves up into the structure of intelligence, there was no need to make a special study of the small person's mental behavior. A sensation, say of

a bitter taste, is, to say the least, just as understandable when it happens to be our own as when it is a child's. But as soon as this absurd idea of a primal swarm of discrete psychical atoms mechanically arranging themselves was displaced by an organic conception of a continuous life-process, of a progressive exercise and perfecting of function from the first, the need of careful observation of a child's mental activity became apparent. It was now a matter of the first scientific importance to know how the functional processes started, how, for example, selective interest first determined the focusings of infantile attention, and how the two activities which underlie all the organizing work of intelligence, differencing of the unlike, and assimilating of the like, begin to play on the field of presentation.

This investigation into the mental processes of the first years of life is, in a sense, necessary as a verification of the result of the psychological analysis of our adult consciousness. For example, any scientific theory of man's belief in the supernatural and his way of envisaging it, must condescend to test itself by a study of children's partially spontaneous ideas about God, fairies, and the rest.

To suppose that a psychologist could construct all this *a priori* from the principles found by analysis of his own mental processes, strikes me as an idea grotesquely inappropriate to a scientific age, which is supposed to have acquired a supreme regard for the value of fact. One cannot help suggesting that any psychologist who knew nothing to start with of children's ways would pretty certainly find his construction a matter of hilarious comment for intelligent mothers.

I will now add that this work of observing, interpreting, and recording the expressions of a child's mental activity is a work so large, so intricate, and demanding such special gifts in the worker, that it may fairly claim to be a separate department of psychological work. It has exactly the same right to this position of a distinct scientific department as the group of investigations which biology hands over to the embryologist, or the group which perhaps forms the larger half of anthropology or the Science of Man;

namely, inquiries into man's origin, his primitive structure and life-habits.

So far from psychology being only one general doctrine as Professor Münsterberg asserts, its present tendency, like that of other sciences, is to break up into a larger and larger number of departments. The psychology of childhood has been thrown off by the parent-stem very much as the psychology of primitive man, and pathological psychology had previously been thrown off. Each of these departments constitutes a special kind of work requiring peculiar qualifications in those who undertake it. The fact that each set of workers needs to prosecute his investigations in the light of general theory, and that his results will later on be utilized in setting forth and illustrating the general theory, does not affect the status of the work as a quite special and unique department.

We now come to what seems to me to be the bone of Professor Münsterberg's contention. He is, I think, half disposed to allow that there may be a child-science, a very small affair no doubt, but still a branch of science, provided that observations are carried out by experts trained in general psychology. What he will not have at any price is the trespassing of the amateur upon the preserves of the savant, the clubbing together of a lot of unskilled parents and teachers under the title of associations for child-study.

Here, again, I think, the Professor is carried away by his love of strong statement. I should quite agree with him that there is much in the way of child-observation that only one highly trained in the art of observation in general, and in the interpretation of the expressions of the mental life in particular, could hope to accomplish. To see how hard it is to fix the moment when a true smile of pleasure, or a genuine laugh, or a fit of true anger, first appears in the infant's life, it is enough to read the efforts of a trained observer like Preyer. Much of the methodical observation of infant's movements lies beyond the reach of the average member of our associations; and it is well to recognize this fact. But given intelligence, fair observing powers, given further a training in

psychological theory, and in some methodical line of child-observation, there is a large field for work which will have its scientific value. The preliminary training might well be supplied in our colleges, including the training colleges for teachers (normal schools), and the universities might be expected to recognize the results of this observation when they amounted to a genuine piece of original research.

I would go further and contend that even without the advantages of a preliminary scientific training, which I am in no way tempted to underrate, an intelligent mother or teacher may by such an association be put in the way of carrying out observations of real value. I, at least, should regard a continuous and methodical record of the sayings of a thoughtful child of the age of six, say about God, birth and death, dreams, and the like, as a real service to child-psychology. The fact that the recorder does not see all the psychological significance of what she puts down no more affects its objective scientific value than the fact that many an observation of importance to anthropologists has been made on the ideas, sayings, and customs of the lowest races of mankind by missionaries and others who were quite innocent of anthropological science.

Professor Münsterberg would probably object to my bringing investigation into the ways of children into this comparison with that of missionaries and travellers into the ways of savages. The latter, he may well urge, are remote, inaccessible to most of us, and rapidly disappearing; whereas the child is near and only too accessible, and has, moreover, come to stay. There is force in this, and I readily allow that having ourselves been children and had something to do with them we ought to be fairly well acquainted with their characteristics. I am not alone, however, in holding that this is very far from being true of many, probably of the majority of us. We may not be quite so ignorant of the characteristic modes of a child's reasonings as we are of those of a savage; but we are, I suspect, vastly more ignorant than we ought to be and than we often suppose ourselves to be. Professor Münsterberg's tacit assumption that we do know children's

minds by the light of nature aided by our general psychology gives to some of his remarks a quite amusing look of extravagance. To suppose that the inquiries into the stock of children's ideas are on a level of inutility with possible inquiries into the percentage of adults who happen to have seen a photograph, is, on the face of it, grotesque. It is safe to say that these inquiries carried out methodically in Germany and America have given us a far more definite knowledge than we possessed before respecting the influence of surroundings, natural and social, in determining the special direction and the limitations of children's observations. As such they have, I consider, a distinct value for child-psychology.

So far I have been considering the psychological value of these attempts to observe children's characteristics. But as Professor Münsterberg reminds us they may have another kind of value, namely, for the observers themselves, by bringing them into a relation of closer acquaintance with childhood and so furthering their practical work of instructing and guiding it. This way of estimating child-study, though it naturally makes us think of the professional teacher, applies also to mothers and others who are called upon to understand and to manage children.

Professor Münsterberg hardly does justice to this side of the subject. He holds that any attempt to describe and explain a child's mental processes is a part of the general "atomizing" psychology, and, as such, is directly opposed to the attitude which the educator has to take up towards the child. This antagonism I wholly fail to discern, and I regret that the Professor did not take some pains to explain and to illustrate what he means by it. Is it a condition of my having an ideal conception of what I want my child to be that I must not inquire as closely and with as much scientific precision as possible into what he actually is, and how he came to be what he is? Is it not, on the contrary, the first condition of my doing anything towards the realization of my ideal conception that I should understand this child as he is, his characteristic modes of thinking, feeling, and striving, and the instinctive tendencies which lie deep below these, which form the basis of his individual self and upon which I, as

his educator, must play if I am to aid in a new ideal development of his "nature"? I had supposed that since Herbart wrote, at any rate, the place of psychology in the theory of education as thus ancillary to ethics had been a commonplace.

Professor Münsterberg allows, of course, that psychology has a certain bearing on the practical work of training young minds; only he objects to teachers' ambition to study psychology for themselves. The true value of psychology for the teacher is, according to him, only realized after its scientific principles have been worked up into a theory of education.

Now there is much force in this contention. Scientific principles when they are made the basis of a theory of some branch of human activity have to be divested of their purely speculative form, and to be given a practical turn. Thus the psychological principles known as Laws of Association must, in a theory of education, be exhibited as forming the basis of rules for the training of the memory; and it would not do for individual teachers to try to construct each his own theory out of such psychological principles. Yet while I recognize all this, I do not agree with Professor Münsterberg that it proves his point; namely, the undesirability of the teacher's studying psychology directly.

One thing will occur to every intelligent teacher here, that psychology is a rapidly progressive science, and that a theory of education, however good, will tend to lose much of its value because it falls behind in respect of its psychological base. Herbart's theory of education, though in some of its parts it retains its old value, is sadly defective to-day by reason of its antiquated psychology, its complete ignoring of the theory of heredity and of individual "nature," not to speak of its mythological account of the conflicts and reconciliations among presentations. The modern teacher is a particularly wakeful person, and means to be up to date. Hence, his determination to know his psychology.

He knows further not only that theories of education are apt to grow old by a petrification of their psychological base, but that even when they are brand new they cannot be counted on to give a full, unbiased representation of the results of science. A the-

ory of education is wont to reflect the one-sidedness of the theorist's psychology as well as that of his ethics. In England, at any rate, teachers are a little suspicious of theories of education, and are not disposed to risk their salvation by embarking on them; and this is another reason why they are so eagerly betaking themselves to psychological science itself.

I hold that the instinct of teachers to get into direct touch with psychological principles is a sound instinct. It is the first outcome of the teaching of Rousseau, Pestalozzi, and other writers on education, who, though, as Professor Münsterberg reminds us, they were themselves not psychologists, recognized the supreme importance to the teacher of a thorough understanding of child-nature and of an adaptation of the methods of teaching to this nature.

What I have said about the need of knowing something of psychological principles seems to me to hold good also of psychological science. If a teacher is justified in his efforts to get as full and as exact a knowledge as possible of the mental side of the child he is justified in desiring to get a similar knowledge with respect to the bodily side. Indeed, it seems self-evident that child-knowledge must include the two. The teacher who desires to be an intelligent teacher is right in looking out for the latest results of physiological research with respect to the processes of nervous waste and repair, and a good deal beside. He may be well suspicious that this physiology which he finds worked into his theory of education is not of the newest or of the best.

Professor Münsterberg makes one remarkable exception to his general prohibition of a direct study of science by the teacher. He allows that psychology may be approached *after* the theory of education has been mastered.¹ Did ever an argument more naïvely give away its case? Just imagine a professor of engineering advising his class not to touch pure mathematics or physics until he had mastered the theory of engineering.

(1) So he seems to say quite distinctly on p. 132, when he speaks of the teacher learning psychology after accepting the theory of education in order to understand this theoretically.

The Professor's horror at the idea of the inexpert teacher dabbling in the mysteries of his sacred science comes, I suspect, of a misapprehension. He assumes that the teacher means to go straight away and deduce some absurd rule of practice from his scientific knowledge. No doubt this is possible, and has, I fear, been done by the foolish, who will hunt out scientific principles as if they were "tips" showing him a short cut to his goal. But I esteem the modesty of teachers too highly to believe that this is common. The chief value of a careful assimilation of the principles of psychology resides, I take it, in the intelligent attitude of mind which it helps to form. The teacher, absorbed in his practical work, may forget much of the psychology he has learned at the college; but if he has studied it well his mind will be more alert in its observations of childish characteristics and more ready to recognize what he observes. He will, moreover, be more ingenious in devising happy educational experiments, in thinking out new adaptations of surroundings to individual needs. The ever new problem of the school, to find out what this child is like and how to deal with him in the best way, though it cannot be solved directly by an application of scientific principles, will be the better solved by the teacher who to practical sagacity and tact adds the light-giving quality of a scientific habit of mind.

If this is so the growing desire of teachers to take part in methodical child-study is seen to be justified. It is well for those who have to understand, and to mould their instruction and discipline in conformity with, the fundamental tendencies of child-nature to train themselves in the observation of children's minds. If such methodical child-study is carried out intelligently in the light of psychological theory it will have more than one kind of value for the observer. In the first place, it will give reality to his psychological principles, to his ideas of the laws of mental development and the rest. Principles should always be studied in the light of concrete facts; and the more a teacher who studies psychology is able to test his principles by direct observation of the early phases of mind-growth the better. In the second place, such work will be valuable as an exercise and

development of observing power of a very special and difficult kind, always involving some amount of delicate interpretation of what is seen and heard, of a kind, too, that will have constantly to be drawn upon in the life of the school. This value of child-observation for the teacher himself will not be the same as its objective or scientific value. The latter will depend mainly on the originality of the line of observation and of the method followed, whereas, the value of observation to the teacher may be considerable when the work done is nothing but a repetition of what has been done before. Its subjective value will, however, be the greater the more scientific the way in which it is conceived and executed. Precision, method, guidance by a knowledge of principles, all this which is essential to scientific work will add to its disciplinary value for the teacher.

My aim so far has been to relieve teachers of some of the nightmare pressure which a perusal of Professor Münsterberg's diatribe is likely to have left on their spirits. He seems to me by unduly narrowing the scope of psychology and by misapprehending its relation to education to have failed to establish his case. As in many another attack, want of that moderation which is the note of the scientific temper has landed the critic in a morass of arbitrary and extravagant statement.

Yet, as I have said, the Professor's fulmination ought not to leave our ears drowsy. There is some meaning behind what look like childish crudities of assertion. His rather savage attitude is in a measure justified by defects and extravagances in those against whom his attack is directed. Let us now, in the light of these criticisms, see in what respects the present ardent pursuit of a psychology of the nursery and classroom has been at fault and laid itself open to the blows of the derisive critic. If we are really jealous for the credit of our cause we shall do well to take to heart this harshest of criticisms so as to purge our aims and methods of everything unworthy.

To begin with, we should learn from these rather unpleasant strokes of the critic to proceed modestly, to avoid anything like inflated talk about revolutionizing psychology by the annexation

of the nursery (Professor Münsterberg might have been yet harder on this kind of talk), and about inaugurating a new era of scientifically grounded education. I am in no way deterred by Professor Münsterberg's criticisms from thinking that a full and exact account of the behavior of a child's mind, as well as of the phases of its development will, when we have completed it, be a valuable addition to the science of psychology. Yet I should hesitate to say that it will lead to a recasting of our psychological theory. I do not think, indeed, that what Professor Münsterberg is apt now and then to speak of as if it were the whole of psychological investigation; namely, the inquiries and painstaking work of our psychological laboratories—highly as I esteem it both for its insistence on more exact methods of research and for the interesting character of many of its results—has succeeded in forcing on psychology a restatement of its fundamental principles. In like manner, while I hold that a properly worked out psychology of childhood will be of very high value to teachers, I am not prepared as yet to say that it will render necessary a complete reconstruction of our theory of education.

Let us candidly admit, further, that a large part of the work done by our child-study associations is not scientific research. We may, perhaps, dignify it with the name of study; not with that of scientific investigation.¹ Taking down a child's sayings; asking him about his preferences among the heroes of history or fiction, this and much else of a like kind does not transform our worthy member of a child-study association into a savant. The sooner we all get this absurd idea out of our heads the better. Genuine scientific work in the domain of child-observation, such as Darwin, Preyer, and Miss Shinn give us is skilled work of the most special kind and presupposes years of careful preparation.

I am disposed to agree with Professor Münsterberg and with another German psychologist, Professor Stumpf, of Berlin, that much of the statistical inquiries which make up so large a part of

(1) Hence I prefer the title child-study to that of child-psychology ("Kinderpsychologie").

the work of the members of these child-study societies is sadly wanting in scientific dignity. Professor Stumpf writes of the answers to questions about dolls sent out by Professor Stanley Hall, that even when they do not fail to tell us anything new they are destitute of all interest, scientific as well as educational. The relative numbers of preferences avowed for wax dolls, for paper dolls, for china dolls, and so forth, can, he thinks, at the best only be of interest to the makers of dolls.¹ I should not go quite so far as Professor Stumpf, for I can easily conceive of a knowledge of children's preferences with respect to doll-material throwing light on the whole attitude of "dollatry," which is certainly a large feature in child life and requiring to be studied if we are seriously bent on knowing this life. At the same time I quite agree that this kind of investigation borders on the frivolous.

The common mode of inquiry by setting questions to numbers of children and young persons and collecting the answers can have but little if any scientific value. For one thing, it is open to the objection that applies to every form of questioning, that we cannot be sure of obtaining an honest "shelling out" of the inner self in answer to our question. Of this more, presently. Another objection is that the particular points investigated in the "questionnaire" are apt to be small and unimportant. How much do we learn of child-nature when we ascertain that a certain proportion of children of a particular country and class think George Washington or the Duke of Wellington the biggest of the world's heroes? Whatever statistical reasoning is carried out on the basis of such observations could, one imagines, have, at best, only an ethnological or sociological value. A study of the various forms of the doll-cult among different races has, as we know, an ethnological significance. A comparison of the ideas and sentiments of different classes of English children at this moment with respect say, to the right and wrong of the war in South Africa, would possibly be interesting as bringing out certain differences in the

(1) See his address to the Berlin "Verein für Kinderpsychologie" printed in the *Zeitschrift für Pädagogik: Psychologie*, 1900, pp. 1., ff.

intellectual and moral atmosphere of the homes of these classes. The most likely direction for obtaining useful results here would seem to be the elucidation of the mental differences of the two sexes. Yet the difficulty of making sure that we are evoking children's own ideas and feelings is a formidable obstacle to our acquiring certain knowledge in this domain of inquiry.

Not only is much of this statistical inquiry devoid of any considerable psychological significance; it has no appreciable value for the observers themselves. To set questions to children, and to collect the answers, does not bring the teacher into fine observant touch with a child. So far as I can see, not one of the qualities of a careful observer and a skillful interpreter is brought into exercise here. The worthy persons who devote themselves to this kind of "research" should understand that, to use the words of a "Report of the British Child-Study Association," they are doing nothing to gain "greater insight into child-nature." They are allowing themselves to become hardly more than a useful bit of recording apparatus for the statistician.

It seems not unfair to suppose that the setting of so much of this kind of questioning work to the associations, is explained by the circumstance that these organizations contain a large proportion of unskilled persons trained neither in fine and accurate observation nor in scientific reflection on the aims and methods of child-study. If only the teacher-student were trained in something like methodical observation in the training college, more might no doubt be done later on in the way of a careful kind of statistical investigation. Such useful inquiries as the comparative measurements of simple processes of memory in boys and in girls, and in children of different ages would, it is clear, take on this statistical form.

Yet from the point of view alike of psychological value and of benefit to the observer, I am disposed to put the methodical and prolonged study of an individual child far above this statistical work. So long as our investigations are wide-ranging, they are apt to be thin and scrappy in their output. A child is a living unity, and *pace* Professor Münsterberg, we are able to observe

him to some extent as a unity. Those who have read Miss Shinn's admirable notes need not be told what this methodical observation of the whole child means. But study of a child can be of value when it falls short of this more exhaustive kind of observation. A careful record of the play of a single child accompanied by a few general remarks on his temper, intelligence, tastes, etc., would have for the psychologist and for the observer alike more value than the results of questionnaires addressed to large numbers of children.

It may readily be thought that the study of an individual child could tell us only of one particular instance of the young mind, and not of the common type which those who desire to gain greater insight into child-nature are thinking of. Yet we learn the typical structure of a species of plants through careful study of a normal individual. Children vary no doubt much more than plants of the same species; yet it holds good, as the work of Preyer shows, that we best approach the typical form of a child's mental development by the consecutive, methodical observation of one specimen. Such study of one individual child should, of course, be supplemented later by a comparison of the results with those of others' similar observations.

Such a study of one child—or a pair of children in their similarities and contrasts—falls more naturally to the parent than to the teacher. Its results can only be of value when the parent or other dweller in the house acquires the difficult art of subordinating the personal interest in "*my child*" (in its difference from other and "ordinary" children) to a scientific interest in the child as such. Teachers who really mean to reach any depth in their soundings of child-nature should also try to follow out such a continuous and methodical piece of investigation into the mental development of one or two children. The drawing up of a schedule for this kind of investigation, at once close and continuous, and on the other hand of a manageable compass is, I think, the thing most needed just now by our child-study associations.

Such work, in order to be of the highest benefit to the worker, should include first of all, some finer exercise of the observing

faculty in the noting of objects of sense, e. g., facial or other movements, articulate sounds; and secondly some amount of interpretation of what is seen or heard. With respect to the former it must be remembered that to observe and to record with an approach to scientific precision say the movements of expression of an infant, makes a heavy demand on the student. Professor Stanley Hall's schedule of points to be noted in the bodily manifestations of anger in a child could, I venture to think, only be worked out with any approximation to exactness by a particularly good observer, ready not merely to seize the aspects of an object and changes in these swiftly and neatly, but to attend at one and the same moment to a number of such aspects and changes. Tasks of this difficulty should be led up to gradually. More simple work, such as the accurate recording of carefully selected varieties of facial movements, gestures, attitudes of body, or of vocal utterance would supply a quite hard enough exercise in the early stages of training.

As to interpretation, the task of adding the right meanings to a child's movements or vocal utterances, is often of so delicate a character that we might well shrink from entrusting it to young students. Yet if one is to study child-nature at all one must be exercised in some measure of interpretation, and these exercises in reading off psychical meaning, should certainly constitute one chief portion in the work of our associations. The student should be invited to observe and interpret some specific class of movements, and this part of his work should include critical reflection and some comparison of the value of different explanations which may be offered. The nonsense that has been talked, even in books, on the wonderful emotional susceptibilities of children shows how little attention is wont to be devoted to the work of careful interpretation. To decide, for example, whether a look of sympathetic grief in a child's face is a genuine expression of feeling or a more or less mechanical imitation of another's expression may tax the powers even of one familiar with psychological principles.

This training in the finer observation and interpretation pre-

supposes that the observer is in touch with a child who has not come to a full use of words. It is during the first years—especially the first three—that the powers of observing closely and interpreting wisely are put to the severest test. This is clearly illustrated in the observations of Darwin, Preyer, Miss Shinn, and others. Hence the importance of a methodical study of a “mite of a child” as a part of a teacher’s training in psychological observation and interpretation. After some mastery of language has been attained there will, of course, be less call for the finer sort of observation and of interpretation alike. Yet it is a serious error to suppose that we can get at children’s thoughts and emotions merely by listening to their words. Language is but one of the avenues by which we approach another mind, whether that of a child or of an adult. The deeper and more subtle understanding of one mind by another means a good deal more than a scrutiny of the meaning of words. We must remember, too, that a child can only very imperfectly express his thoughts and desires through the medium of our highly artificial language. Hence a considerable demand will be made on observation and interpretation even in the case of older children.

In speaking of observing a child methodically I have supposed that it will consist merely in passively noting revelations, e. g., expressive movements, which occur spontaneously and are not called forth by any act of the observer. But this is far from being the case. In all searching inquiry into a child’s mental processes we have to introduce a good deal of the active or experimental element, bringing to bear on the senses, and through those, on the whole consciousness certain forces with a view to see what follows.

The comparative value of passive observation, which waits for the phenomenon we want to study till nature produces it, and experiment, which tries to produce that phenomenon by arranging a new set of conditions and forces, has been fully discussed by logicians. Among the chief advantages of experiment is the opportunity to extend and to vary our observations at our will. Man learned very little about electricity from nature’s sponta-

neous productions of it in the lightning flash, etc., before he succeeded in seizing it with his experimental hand, and making it yield its secrets by obeying his behests. This wider and more exact knowledge of the behavior of a phenomenon includes a comprehension of its causes; for since in experimental work we ourselves produce what we want to observe by setting in motion certain agencies which are already known to us, we have the best means of ascertaining how it has been brought about.

On the other hand, in thus seeking to produce artificially what we want to see, we encounter special difficulties. The value of an experiment depends on our taking accurate account of all the agencies we have started.

These and other general considerations help us to gauge the value of experiments in that kind of child-study which aims at being scientific. Spontaneous revelations of ideas, tastes, and so forth are, of course, our starting point. In order to get a deeper insight into child-nature, as into that other and bigger nature, we must begin by humbly sitting down and watching. Yet it will never do to content ourselves with this passive, waiting attitude. We must try to sound depths which will not of themselves come to the surface; and in truth we are always attempting this. When we question a child we are performing a simple experiment, that is to say, bringing to bear a certain kind of mental agency with a view to elicit something that has not spontaneously revealed itself.

Yet experimenting on a child's mind has its serious risks. An untrained person is pretty certain, when "teasing" the young mind, to go wrong by overlooking this and that influence which he has introduced and the effect of which makes the meaning of the result other than he supposes it to be. To go back to the simple experiment of a question: the supposition that a child's answer to your question will certainly give you his net idea or his unadulterated feeling shows a touching simplicity of faith. When you take up the attitude of questioner he will be apt to take up the attitude of one who wants to know what sort of an answer you are in pursuit of, whether from the amiable desire of giving

it to you, or, as may happen with the "contrary" sort of child, from the less amiable wish to baffle or "dish" you. In this way he may, without having a clear intention to deceive you, mislead you as to the character of his real ideas and feelings.

Nor is this the only kind of interference with his experiment to which the questioner of a child is exposed. There may be deeper lying forces at work in the young breast which are strong enough to defeat your end. It has been found as a result of a questionnaire that girls "own up" to fears more readily than boys. Of course they do. A girl's honor is less at stake; she has vastly less to lose by a confession of fear than a boy has. The boyish instinct to *look* brave at least, is in itself an insuperable obstacle to our finding out with any degree of exactness by questioning them what their fears are like.

In addition to these sources of error in particular cases, there is in much of this questioning of children a tendency to induce in the unformed mind a precocious habit of "introspection," of digging up, so to speak, and examining its thoughts and feelings. The development of such a habit must be fatal to all our attempts to get at child-nature, for the very good reason that this, in its genuine and characteristic modes of working, has ceased to be. A child that has begun to think about his fears, his preferences, and so forth as a matter of importance, since you care to ask him about them, has begun unconsciously to transform them, so that you can no longer get into touch with them in their original form.

These risks must not deter us from experimenting; indeed, we shall not be able to avoid this kind of investigation. It may be added that there is a measure of the same risk in certain kinds of passive observation. A biologist was trying not so long ago to get a series of photographs of a dragon-fly as it was gradually emerging from the nymph stage. He carefully observed it for five days, during which time no change was observable. Yet, as soon as he was called away, the provoking little creature began to develop itself quite energetically. Did the presence of the observant eye act as a disturbing influence on the creature?

It looks like it. In any case it is certain that much of our child-observation, even when we flatter ourselves that we are capturing in our recording net genuine specimens of spontaneous self-revelation, is marred by this source of error. A child's mere conjecture that you are in chase of something in his mind will suffice to destroy the perfect candor which belongs to the unconsidered utterances of confidential moments.

Enough has probably been said to show that to study a child's mind with something like scientific precision and certainty of result, is a task beset with huge difficulties which only an adequate methodical training will enable us to surmount. This training will include, as was said above, a knowledge of psychological principles; for they who have no grasp of general principles will go hopelessly wrong from not knowing what is reasonable, and what supremely unreasonable, to expect in a child of a certain age. It will include, too, some familiarity with the essentials of scientific observation, with the pitfalls which lie in the way of the unwary, and with the conditions of a sound experiment.

This preparatory discipline should, as I have urged, be secured to teachers as a part of their professional training. Until it is provided beforehand in this way, our child-study associations must see to it that they supply the deficiency so far as possible. They must call in the expert for the definite purpose of drawing up a scheme of reading and practical work which will supply some parts of the needed training. If they fail to do this they should candidly state that they are not bent on scientific study.

Whether it would be worth while to have associations to do work which fell altogether below the rank of scientific I much doubt. It is true that even an easy and scrappy kind of observation might, as I have urged, indirectly be of some use to science. And since the teacher must as a rational being adjust his teaching to what he thinks child-nature to be, it seems to follow that even such lines of work as show themselves when viewed scientifically to be very unsatisfactory may, by making the worker's conception of a young mind a shade less unscientific, yield some

practical benefit to the teacher who takes part in it. Yet I hold that the ideal of these associations should be work of scientific dignity, having at least that measure of methodical precision which will make it respectable and worthy of recognition. And given intelligent teachers and parents I do not see why, with the help of a sufficient preliminary training of the workers, and of a sufficient guidance by the expert, the work should not reach the level indicated.

I hold, further, that there are lines of work within the reach of those thus prepared and guided which would not only supply excellent training for the workers, but would be likely to lead to new and valuable discoveries.

As an illustration I would take the observation of the tendencies which lie at the root of moral development, the social impulses and their opposites, the first responsiveness to the restraining action of the social world on outbursts of passion and the like. And here I believe experiments properly thought out might be appropriately introduced. Parents who are quite innocent of child-study are always experimenting in a loose way on their children, trying this and that influence in order to modify the temper, to draw out reluctant action, or to arrest some injurious impulse. Now, why should not such educational experiments be carried out by intelligent and properly trained parents more carefully, with something of the definiteness of aim and precision of method which characterize, say, the testing of the color-sense by Preyer or Miss Shinn? A correspondent sent me not long since an account of an experiment which he had worked out. He noticed that his child, an infant of four weeks, much given to crying, never did so without moving its arms also; and it occurred to him that if he kept the arms quite still, the crying might be prevented. He carried out the experiment by placing his hand over the child's two hands, which were lying close together on the chest, and holding them very gently. Success attended the experiment again and again, the child was quieted and fell asleep.

This simple kind of experiment has probably suggested itself to others who, like my correspondent, may be supposed to have

never heard of the psychological discussions respecting the relation of emotion to bodily movement or of the interesting hypothesis of Professors Lange and James that the bodily activity is the life-blood of the passion. But with more of scientific intelligence this sort of experiment might be greatly improved. It would have been well, for example, if my correspondent had varied his, by trying other restraining forces besides that of his hands with a view to discovering whether the quieting down was due merely to arrested movement or was, in part at least, the effect of the warmth or other attribute of the paternal hand. Such simple experiments in the first crude stages of parental discipline might, I feel sure, when intelligently carried out, help to give more of a scientific basis to our theories of moral education.

It is probable, indeed, that intelligent parents have, even without the invaluable aid of scientific theory, thought out for themselves ingenious experiments in the management of their children, the results of which, when collected, might have made our educational theories less unreal.

To sum up, child-study, though as yet in its crude infancy, and marred by something of the foolishness and impulsiveness of that state, has a future before it if it will only learn to recognize its shortcomings and to aim at a serious standard of work from which it is at present a long way off. Our young workers must exercise themselves in self-criticism, and in what may prove to be the more difficult achievement of self-subjection to the guidance of the expert. They sometimes remind me of amateur climbers who want to use up all their energy in a first rush, and will not listen to their wiser guide who again and again utters the warning "*nicht so rasch!*" But one must not despair of their learning to submit to discipline, so as to be able to take part in that higher and more valuable kind of child-study which I have tried to describe.

One warning seems necessary as a last word on the subject, a warning which grows out of Professor Münsterberg's criticism. The parent and the teacher must not suppose that child-study, even after it has been greatly improved, will meet all their wants

when they take on themselves the weighty business of educating children. Much of the extravagant talk of the advocates of this child-study seem to imply that the whole problem of training a child consists in understanding its nature. This idea has come to us from Rousseau, who, by the way, had the courage of his convictions, and bade the would-be trainer stand by and allow the child to unfold himself in nature's own beautiful way. Rousseau urged the need of a careful study of the child in order that we might not clumsily interfere with this natural self-development. It is to be feared that this idea of being merely a handmaid of nature in her work of unfolding child-nature lurks to-day in the twilight background of many a parent's consciousness. Teachers, too, though they cannot but see how Rousseau's theory leaves no room for their work, are, I believe, still infected with this idea of studying nature in order to follow her as though she were supreme.

Those who reflect even but little know how far this is from being an adequate view of the educator's task. To try to educate a child means surely to work for the consummation of human development, for the fruition of the full potency of manhood. If, then, we are bold enough to essay the work, we must have at the outset a clear conception of the make of this high man-soul which we wish to help in forming, and we need to make and to keep the conception very clear. That would be a fatal day for a community in which its educators became wholly preoccupied with problems of child-study. The ideal conceptions, too, of a wise man, of one strong yet gentle, and the rest, need to be considered and reconsidered. The whole of ethical literature, ancient and modern, cannot supply us with such firmly drawn outlines of the ideal types of human character that we parents and teachers have nothing to do for ourselves in the way of hard reflection. Nor can we blame the writers as if they had omitted something. For ethics is bound to treat of the virtuous man in a somewhat abstract manner, to assume that every individual may be trained to grow into one and the same type of personality. We know, every experienced parent or teacher knows,

that the problem of training is often made grievously hard just because human nature is so various, because it seems almost impossible for us to say beforehand what is the best, so carefully hidden away, as it often seems, in this boy and girl; or what is the ideal self which has never been before, and will not be now if we fail to discern the rich diversity of human excellence, and the hints of their potential realization which may announce themselves only in faint, fugitive flashes in the raw, unformed child-soul.

Nor is this all. The world is ever moving on and the spirit of the age becomes a new one. In the common consciousness of a community, that reflected, say, by our better class of journals and our imaginative literature, new types of the admirable emerge and get accentuated. At this moment new modifications of the idea of the "fine man" may be detected, among which the trinity of virtues, smartness, strength and daring, the sure harbingers of "success in life," is conspicuous. These changes in our conception of what sort of character is desirable will affect the ideals of the parent and teacher. Half unknowingly, perhaps, the mother of to-day is aiming at preparing her boy to take his place in society as it is, and that means at fashioning him after society's standards. Those who aspire to the high dignity of the educator must carefully guard themselves against the insidious influence of the vulgar extollings of the hour. Let them remember the words of Kant: "Parents usually educate their children merely in such a manner that however bad the world may be, they may adapt themselves to its present conditions. But they ought to give them an education so much better than this, that a better condition of things may thereby be brought about in the future."

I take it that there is a special behest laid on us just now to raise our ideals in education. It is not necessary to say that we have fallen on a day of vulgar aims and lowered standards of life. It is enough to remind the reader that the air is full, as, perhaps, it has been full before, of the worship of what is not the best, not the best attainable; full, too, alas, of a cynical laughter at any

suggestion of aspiring to this highest moral level. The minds of the young come at an alarmingly early age in contact with the newspapers and magazines which reflect this worship of the less worthy. What chance, then, of our children growing up so as to help to bring about "a better condition of things"? Shall we trust in these days to the pulpit to neutralize the effect of the worse features of the popular temper? It may suffice to say that this would be risky. If the parent and teacher fail to hold up the standard of "a nobler good" we can have no assurance that our children will ever get near it. One cannot ignore the fact that there is much in the state of education at this moment to make one feel uneasy on this point. The moral training of the home, the most vital of influences, is apt in these days to be shirked, and where it is undertaken with some degree of seriousness hardly escapes the lowering effect of easy popular standards. Teachers, again, with the pressure of the examiner and the inspector ever behind them, have but little time to consider any more remote end than school-successes. It is to be added that in this scientific age the tendency of thought about education with parents and teachers alike, will be towards child-study rather than towards any thoughtful reconstruction of ideals of character.

Yet the conclusion remains firm that what is needed before all things, before child-study itself, right and commendable though it be, is earnest reflection about the future of our children, reflection which shall lift itself above all conventional ideas of what is good, and test itself in the full white light of ethical thought.



CIVIC REFORM AND SOCIAL PROGRESS

E. R. L. GOULD, *New York.*



SOCIAL aggregation follows the natural order of convenience and necessity. From the tent life of the nomadic age to the tenement life of the modern metropolis the same principles have governed. Economic considerations for the great masses of humanity determine residence. When wealth consisted of flocks and herds, neither owners nor servants had settled abiding places. With agriculture, the standard occupation, wandering ceased, but family isolation became the rule, only here and there modest agglomeration forming the exception. As soon as trade was introduced, and desirable possessions included the products of other lands, the foundation of the modern city was laid. The structure has grown with magical rapidity since machinery and its products, railways, stocks and bonds have come so largely to stand for wealth. The city is the outcome of industrial and commercial requirements. Not choice, but absolute necessity, dictates the massing of population therein.

Industrial and commercial activities are the main factors in the creation of cities. Likewise, they produce the combinations known as greater cities. Thus—Greater New York, Greater London, Greater Glasgow, and others. Concentration may be a good thing in itself, but it is apt to give rise to ulterior consequences which, unless rectified, bring serious results. Congestion of population is, perhaps, the principal drawback. All cities suffer more or less from this condition, even those modern

American cities which have never been confined within walls and moats, as have many of the older European centres. It may surprise some to learn that New York has a region of about thirty-two acres in extent—Sanitary District A of the Eleventh Ward—which is the most densely populated region in the civilized world. Its population numbers about one thousand to the acre. Bombay comes next with a district only three fourths as congested, while the Josephstadt of Prague, which has been so much talked about, contains less than half as many persons per acre as this district of New York. Indeed, New York City, below the Harlem, including the whole of the New York which most outsiders know, is more densely inhabited over its entire area than any other city of Europe or America. Congestion gives rise to slums, and slums whether regarded from the economic, the physical, or the moral points of view, are the most expensive features of modern city life. The records of the Health Department, of the Police Board, and of almshouse and asylum administrations, show us what burdens such localities as St. Giles in Edinburgh, District Fourteen in Glasgow, the rag-pickers' quarters in Paris, Seven Dials in London, and Hell's Half Acre, and the Devil's Kitchen in New York, entail upon long-suffering communities.

Rigid civic administration in its various branches may do much to mitigate the evils of slumdom, but a little foresight in planning, would have materially prevented their creation. Unfortunately, the city's anatomy did not receive very much of our forefathers' attention. It is rather amusing to note that the Street Commission of 1807-9 which laid out Manhattan Island, apologized for going on beyond their original task, asserting that they knew they were covering space which would not be needed for generations to come. They did not run a line beyond the Harlem. It was a good thing that they overstepped the bounds of the work given them, as all the upper part of the city is laid out in rectangular fashion. But for the most part, and this is true in the older parts of the city, no plans of any kind,—no preconceived order, has been followed. The special purpose seems to have been to

serve the economic convenience of particular residents. Thus, in the majority of our large cities, grown up around factories, docks, and railway stations, as living conditions become intolerable in any quarter, the necessity for a code of building regulations and of proper sanitation is recognized. Only rarely as yet, are communities far-sighted enough to recognize that suburban development should be controlled, and an orderly plan for extension, preserved. If this is not more generally done, it will be found that "greater" cities have simply invited greater evils.

This large, and ever growing, city population is not a passing phase of social development, but is, so far as we can see, a permanent factor in civilization. There has been no setback since the movement began, and there is no apparent reason why retrogression should begin. Everything, in fact, points the other way, namely, to the increasing influence of the city. We cannot, if we would, reverse the tendency.

The title of this article contains two phases, which need some sort of rough definition. What do I mean by civic reform, and again by social progress? Social progress, the larger term, is designed to stand for the higher character-products of community life. Civic reform means not merely improvement in existing municipal government, but the development of a sound, elastic, and progressive theory, in accordance with which administration may be shaped. The city is already the home of a numerically large and exceedingly influential element of the population. Community life will, of necessity, more and more mould national life. Urban environments, which so powerfully influence character, are themselves affected in the highest degree when not actually the product of civic administration or maladministration. What we call social progress, the resultant of associated life, touches thus at many points the conduct of municipal affairs. If my meaning is not clear, let me illustrate by a few concrete examples. No one, I suppose, will deny that the city has immensely modified the physical conditions of existence. Death-rates are always lower in the country than in towns, and besides there is much less sickness in the former than in the latter,—a

situation upon which death-rates contribute no direct information. Hygienic affairs must, then, claim the constant and assiduous attention of the municipal administration. Incompetency or neglect in this department means a grave loss of productive power and harmful consequences to future generations. Likewise, if public education is controlled by politics, and such control results in inefficient instruction, children and youths are pillaged of opportunities which may mean to them the difference between success and failure in after life. Even alleviation of the more stressful features of urban existence, through provision for rational popular amusement, and encouragement to the cultivation of higher artistic and literary tastes, if neglected because the community cannot keep a score of idle bosses and do this, too, detracts just so much from social advance. Letting immorality flourish, and leaving unchecked the rum traffic for the sake of their political exploitation, offer tremendous obstacles to human progress. At every point, indeed, integrity, liberality, and foresight in civic administration are necessary to a harmonious social development.

It must not be forgotten that the city is a relatively recent creation, and it is easily conceivable that we should not have learned at once how to manage it. Indeed, it will be generally conceded that this is the unit of government with which Americans, as yet, know least how to deal. Mr. Bryce has very clearly demonstrated that the government of cities is the weak point in our political system. His statement has a deeper significance than appears in casual observance, because city governments are increasing rapidly in numbers, and each one exercises an influence upon surrounding districts. Governing bodies, as well as individuals, are imitative, and it does not take long for corruption, bossism, and civic misrule to travel from their original strongholds to smaller places. Municipal governments fix, to a large degree, standards of political morality.

What is city government as generally conceived in this country? The thing which strikes one most in seeking an answer is the diversity of theory, as well as the lack of system which pre-

vails. This is largely so because those whose business it is to develop some proper conception and look after the system, distinctly hold aloof. In other words, the "bad citizenship of good citizens," is responsible, as a mayor of Chattanooga tersely put it a few years ago.

I have just said that there is a general lack of theory regarding municipal government in this country. I must qualify this assertion somewhat. There is one class at least who have not merely developed a theory, but have consistently acted upon it. I refer to political bosses, their lieutenants, and followers. To this class a municipal corporation is primarily an enormous disbursing agency, and their desire for affiliation with its different departments varies in direct proportion to the opportunities for "plum-gathering."

To this positive and aggressive theory on the one side, we must add an entire lack of system in practical administration. A few years ago the charters of the thirty-four cities of New York State contained practically only one principle in common, that of having a mayor and city council. The budgets of large cities are made up without any well defined plan, such as prevails in foreign cities, where future necessities are anticipated and adjusted while present requirements are fairly met. Here there is little studied or intelligent purpose to adjust expenditures to real needs. To a department of the city government in the control of the bosses a maximum amount is allowed; another only partially subservient receives the minimum.

Lack of system in apportioning expenditure is reënforced by lack of supervision in accounting for it. I once heard a former official of a great American city publicly state that he at one time examined two commissioners of accounts, who were placed over the city bookkeepers, and who, of course, should be experts. One was asked, "Have you ever seen a balance sheet of the city?" He replied "No." "Have you ever seen the city's ledger?" Again "No." "Do you understand double entry bookkeeping?" "Phwats the good of that?" was the Hibernian retort. Such a condition of city government always seems to me to be

well exemplified by the signs one sees on the doors of city halls. On the outside you see the word "push," but when you get on the inside, it is "pull." But how is all this related to social progress? Very closely, indeed, since our public officials are charged with the administration of affairs which necessarily affect it. Let me place two incidents in juxtaposition to emphasize a contrast between reformed and unregenerate methods. After three years of persistent effort the New York State Board of Charities secured the action of the legislature of 1894, which resulted in establishing the Craig Colony for epileptics in Livingstone County. For the administration of this colony five managers were provided. Non-partisanship was sought by the appointment of two republicans, two democrats, and *one woman*. In the legislature of 1895, a bill was introduced and reported favorably in the assembly, turning out this board of managers, and providing an entirely new one, consisting of twelve members, one from each judicial district and four from the state to be appointed by the governor, with the advice and consent of the senate. Those interested in the new institution found no reason for increasing the number of managers, much less for turning out the existing ones, against whom no complaint whatever was brought. The only possible explanation was a desire to get the institution in line under the equipment and control of politicians. Such a suspicion finds confirmation in the fact that one measure putting the managers of a charitable institution out of office apparently without reason, except in order to have the appointment of a new set, had been already passed before this project was brought up. The whole affair was an attempt to return to the spoils system of management in public charities such as has been, and is, unfortunately, too common in large municipal centres. Just now in New York State this attempt is being renewed, under the plausible pretext of economy and efficiency. But it is to be hoped that the almost universal protest which has been made by those competent to pronounce an opinion will cause the governor and legislature to abandon the promotion of a measure as unnecessary from economic considerations as it would prove iniquitous in its social effects.

The other incident is the issue of a circular of instructions to the administrators of workhouses by the British government, which is grounded plainly upon the desire to serve high social aims instead of political purposes. This circular reminds the administrators that they stand in the place of parents to the unfortunate inmates of the institution. That those persons are now, with few exceptions, the sick, the old, and the infirm, and that they are to be regarded in this light, and not as criminals and outcasts. There is a special warning to the authorities that their kindness, moderation, and self-control will be taken as the measure of their fitness for their work.

Probably the great mass of people hold that theory of city government which assumes it to be the administration of a political unit. Mr. Woodrow Wilson has clearly shown how our fathers misconceived what city government should be. They gave us a form modeled on state and national government with their three branches. They provided in this, as they thought, a system of checks and balances which would work well. As a matter of fact, the executive power, nominally the responsible one, is made to do what the council orders or even what the state government directs.

Experience has shown what a failure the political notion of city government has been, and what humiliation and scandal it has caused. Some reformers have thought to eliminate the evil by going to another extreme, still, however, political, and concentrating responsibility, as if this alone were sufficient. If we look at the philosophy of the change, we see that it really indicates a failure of the representative idea. Cities so ruled become imperial democracies, and if they possessed sovereign privileges they might quite fittingly strike a coin as the French did in the earlier years of this century, bearing upon one side the legend, "*La République Française*," and on the reverse, "*Napoleon Empereur*."

But, whatever theoretical faults one may find, I am inclined to believe that, owing to the apathy of good citizens, the marvelous strength of party organizations and the influence of spoilsmen upon the irresponsible classes, the idea of concentrated responsi-

bility is a practical step forward. I am far from thinking, however, that it approaches an ideal form of change.

Another theory regards the city as a business corporation, and places the conduct of its affairs on the same plane as the administration of a huge business enterprise. The analogy is not at all sound. Other considerations than economic lie at the root of municipal administration. An equilibrium of budget is not at all the same thing as social profit. It is quite easy to attain the former without the latter. City administration is both ethical and economic. Business regulation is purely the latter. Business administration—I use the term in its strict meaning—would signify carrying on the government at the smallest possible expense to the taxpayers. But Tammany has shown how it is possible at the same time to despoil the city and to keep the tax-rate stable. True, the financial administration of the city should be economic, and along business lines, but always with due consideration to the ethical purposes of associated life.

The cry for business men in the mayoralty is another faint echo of the real need. It is not so much the man as the system which is in fault. Often the worthiest intentions have been frustrated by spoilsmen who dominated the city council and thwarted reform at every step. Moreover, the best of business men sometimes have gubernatorial aspirations with all that such may mean.

If we conceive of city government as housekeeping on a large scale, it seems to me we shall not be far wrong. The functions of city departments differ in few, if any, essentials from the wise ordering of household affairs. Certainly in many points they are identical. Why were our aldermen so long called "city fathers"?

The advantage in looking at municipal government in this light resides in the introduction of an ethical concept. City government under this view becomes administration with an ethical end, not exclusively ethical but ethical while observing economic proprieties. The wishes and desires of a father for his family are limited in their realization by economic circumstances. In

the case of a city, while the limitation may not be so nearly absolute, economic proprieties must also be considered.

It is pretty clear, I think, that we are in process of developing a science and an art of civic life. The step is imposed upon us in the interest of social progress. The change from agricultural to urban life, which is henceforth to be permanent, requires that some broad point of view should be taken. Changed methods, of course, must follow if ideals are to be realized and herein lies the closeness of relationship to civic reform. Municipal government in its wider signification represents the functioning of an organism so related to individuals, objectively through environment, and subjectively through purpose and policy, that it exercises tremendous influence in shaping social progress and well being. Such a definition represents a very different view from the old idea of an impersonal organization with the sole object of protecting persons or property, or an organism with functions chiefly political. The obligation to provide those external conditions which favor the upward development of society, enters little, if at all, into these earlier conceptions.

This rising art, with social welfare as its objective, and organic character for its foundation principle, can alone suffice for future needs. It does not represent a compromise with ideals, nor does it leave us stranded half way. Moreover, it links civic reform with social progress, so clearly and so definitely that citizens ought everywhere to be aroused to secure progressive realization.

My present purpose is to point out relations rather than to elaborate the technique of reform. I am writing now as a sociologist; not as a maker of constitutions. But, since the sociologist must understand the structure of the social organism, he should also be able to recognize helps or hinderances to efficient functioning. He may certainly point out the direction civic reform should take, though he is scarcely called upon to prescribe methodical details.

There are certain people who pin their faith to upheavals: upheavals in business to teach men to be more careful and conservative, upheavals of conscience which bring about wise resolu-

tions for future conduct, upheavals of political sentiment to carry through some great measure, upheavals of civic spirit to purify municipal administration and inaugurate purer city government. To the sociologist, upheavals are abnormalities. They may serve temporarily, but their endowment with any fixed part in social development is a confession of weakness. Social progress, if normal and sound, must be wrought out along the lines of steadily operating influences, and a positively constructed programme. The doctrine of upheaval, that final article in the creed of the unthinking American patriot, is useful as a weapon of last resort to get rid of intolerable conditions, but it has no place in any positive theory of government. Revivals of civic spirit are harder each time to bring about, while periods of corrupt rule endure longer.

This brings us to consider the necessity of organization, the upbuilding of a civic party. It is true that danger lurks in all forms of organization, even in those which are meant to serve the best ends, as witness the history of ecclesiastical corporations during the Middle Ages. Some ultra radical reformers are so strongly impressed with the risk that they refuse "to be gathered together." But progress being attainable only through a series of steps and not by a single leap, one is justified in using and recommending agencies which on the whole further higher ends. Experience shows that spontaneous responses from the people cannot be depended upon to secure civic reform continuously. If the bosses were kind enough to perpetrate the worst acts of their régime of control during the six months immediately preceding an election, undoubtedly one could feel greater confidence in the effectiveness of moral uprisings of the people. But bosses are not so obliging as to do this. More often they simulate virtue and advocate the catchy planks in a reform programme with all the ardency and enthusiasm of new converts.

In our large municipalities the democratic spirit is so strong that the masses of voters, to a greater or less degree, resent outside formulation of a programme, the selection of the standard bearer, and *finally* the invitation to join with reformers after these modest

preliminaries have been settled. They resent non-representation and failure to accord influence even in ward matters. Organization from above is not to their taste. To be effective it must be local in origin and at the same time be felt at the head centre. I recall some suggestions made not long ago by Professor Felix Adler in answering the question "why reformers fail." His answer was somewhat as follows: "'Let us have good government.' 'Vote with us,' say the reformers. But in so doing we see presented a sublime spectacle of ignorance with respect to their surroundings. New York is a great cosmopolitan city with German, Bohemian, Italian, Russian-Jewish cities in it as well as an American city; each one is influenced by its own natural leaders. The two great party organizations opposed to reform have the sagacity to appreciate this, and they select from the various populations men who are shrewd and unscrupulous but who are thoroughly identified with their people. We reformers have not displayed a bit of that sagacity. We generally invite some Germans, and others, to act on committees but instead of being natural leaders of their people they are usually so assimilated as to be practically natives. These varied populations look upon it all as a scheme to give power, and, if not wealth, supremacy."

Any movement toward civic reform, to be ultimately successful must repose upon thorough and effective local organizations in the various wards or assembly districts of a great city. Only by such means can distrust of reformers be removed and a real lasting impulse toward larger and effective disinterested public activity be opened to the masses of the people who naturally desire what is good, if oftentimes taking a precarious or false road toward its attainment. We must not forget that the local boss is much more than a political leader. He is usually a dispenser of what we may call beneficence in one form or another, and can be depended upon uniformly to stand by those who stand by him. If sorrow invades a household he takes occasion early to express his condolence and sympathy. At a wedding feast his gift occupies a conspicuous place. At the police court his influence in securing bail or helping in the defence of a member of

his own party who has been arrested, is in constant evidence. In other words, during the whole interim between elections, he stands ready to help, advise, and assist humble exponents of his party faith.

But is the organization of a civic party a practical possibility? Personally, I should answer in the affirmative, and base my reply to a considerable extent upon the experience of the Citizens' Union of New York. I do not mean to say that local organizations will ever be as large or as powerful as the organizations of the regular political parties, but I am sure it is possible to band together in given localities a number of men, say from fifty to a hundred, who will keep alive the principles for which the party stands, and on the eve of a campaign will become a nucleus for the extension of disinterested civic effort. The Citizens' Union did not go out of existence at the conclusion of the campaign of 1897. It appointed a central city committee, secured a modest guarantee of funds from about fifty individuals and commenced gradually to create district organizations of the Union in the different assembly districts of the city. At the present time about three fourths of all the assembly districts in the old city of New York have been so organized, and a large number, also, in the remaining boroughs. The advantage which the Citizens' Union movement has over a federation of good government clubs is that the movement is not in the slightest degree academic in character. Representation on the central city committee is made up primarily of one representative from each assembly district. These representatives who are the democratic body, select a number of delegates at large so that the usual policy has been reversed to this extent, that, instead of those from above inviting coöperation from certain persons known to them in the various local subdivisions of the city, the delegates who are chosen by the natural members of their party in a given assembly district, invite the coöperation of men well known for their public spirit and previous disinterested service, to join them in the central committee and to regulate the policy of the party. The mere fact that the Citizens' Union has been kept alive during the three lean years

of an electoral interim in New York, and that now on the eve of a campaign it finds itself fairly well organized in fully two thirds of the whole city, augurs in favor of my proposition. In New York, at all events, it is possible to secure from a number of individual guarantors sufficient funds to maintain a central body and meet legitimate expenses during the long period which intervenes between mayoralty elections.

A second necessity to the attainment of civic reform is to secure the direct nomination of candidates by the people. *The right to nominate must be as free as the right to vote*, or we shall be generations instead of years in emancipating our cities from the shackles of bossism. The recent experiences of Minneapolis and Scranton show us that this suggestion is no chimera. It worked admirably during a recent experiment in the former city, and none of the direful consequences predicted by the politicians, unless it be their apprehensive whisperings to one another, were realized. About three fourths of those who were qualified to cast a vote at the November election, presented their nominating votes when they went to register, and it was demonstrated beyond all cavil that those who keep away from machine-run primaries will attend direct vote primaries on registration days. The *Minneapolis Journal* in commenting on this phenomenon says, "In the heavy vote polled, there is solid support for the theory that voters have not gone to the primaries under the old system because they have not thought it worth while, and because they felt that they could not make individual choice count. Among the happy results of this development of large attendance at the primaries was the defeat of candidates for the aldermanic office, who had previously demonstrated their unfitness for the position, and yet they would most certainly have been able to secure renominations in aldermanic conventions." Under present primary laws candidates for municipal positions are unquestionably not often the real choice of the majority members of their party. The direct nominating vote secures such a choice and breaks the hold of the political boss, since he is left without an opportunity to manipulate conventions.

Effective organization of municipal parties and nominations by

direct vote belong to the technique of civic reform. If we would continue to instill through various educational means the idea of non-partisanship in municipal affairs, the advantages gained by the applications of method will be fixed in the more positive principles of progress. One would think that an elemental intelligence could easily be persuaded of the non-relation of clean streets to the free coinage of silver, or of tenement reform to canal administration, but there seems still to be many minds fairly claiming even the title of ponderous, which have not been brought to conviction; at least their sturdy allegiance to national and state parties in municipal elections would seem so to indicate. Then there are others who believe that the cry of "reform" is a sufficient watchword, forgetting that the term "good government" is a very great deal of an abstraction to the masses of the people, and that we must give them something more concrete if we are to expect their support. The best way to deal with such classes is for a municipal party steadily to educate through literature, the press, and public gatherings, a knowledge of good government in the concrete, and ultimately seek to unite on a platform which will attempt the progressive realization of a steadily advancing municipal policy which all must eventually recognize to be in the interest of the entire citizenship and promotive of social progress.

An impediment to such education in this country, is the lack of civic self-knowledge. The systematic exposition of the actual occurrences of associated life are not disclosed sufficiently to the inquiring citizen. The largest and best governed European cities have municipal statistical bureaus which are reservoirs of useful facts. In this country there is no coördinated and little systematic attempt to register the facts and occurrences of city life which have social-economic import.

One of the foundation steps in civic reform is the establishment of such bureaus under competent direction so that the public may know what their government is doing and the servants of the public know the better how to direct administrative activities. We know now more or less accurately the death-

rate amongst the population. Besides this we have imposing numerical aggregates representing receipts and expenditures in different departments, quoted in the Mayor's annual message. Why should we not, for example, have figures by which to gauge the social effects of our licensing systems, or of the various methods of dealing with transient and resident poor; results attending the administration of city institutions for the care of defectives and delinquents; a record of indictments by grand juries, and the conduct of criminal prosecutions by district attorney's offices; a register of trials and convictions in local courts; a statement of privileges and franchises accorded by the city council, with the compensations received for them; and a careful account of receipts and expenditures in the different departments so that the actual cost of every branch of the public service may be known, and the ultimate dispensations of all moneys made clear? If these and many similar facts could be presented in proper form without any attempt to gloss them over or distort their meaning, but with the purpose of making clear their true connection with the life and development of the city, we should arrive at a civic self-knowledge which in time would become potent in movements in the direction of true reform.

Considering the permanency and rapid growth of cities, the preponderating influences exerted by them in the body politic and the intimate relation of humanity to its environment, may we not rightly assume that one of the most far-reaching and useful tasks for the present generation is the progressive attainment of right and righteousness in civic life?

THE RUSSIAN PEOPLE: A PSYCHOLOGICAL STUDY

J. NOVICOW, *Odessa.*



HE psychology of a great nation is difficult to determine. When we have before us an organism composed of tens of millions of men, we may assume in advance that it contains the most varied and diverse elements. You may say of it whatever you please; the most opposite and contrary assertions may be equally true in regard to it. One is, therefore, necessarily reduced to certain broad generalizations, which remain in a very large measure superficial. A precision, even approximate, is impossible in matters of this kind. Errors and subjective irregularities are more likely to arise here than anywhere else. Almost involuntarily, every sociologist, in determining the psychology of his nation, gives more or less the psychology of his own individuality. In vain we may employ every effort to arrive at the impartial truth; we can never completely attain such a result. On the other hand, when one undertakes to define the psychology of a foreign nation, he falls into even greater inaccuracies. When we do not belong to a nation, when we have not breathed in its inherent atmosphere with our very first breath, we cannot *feel* as does this nation; and this makes it impossible to talk of it with any intelligence.

From still another point of view, it is difficult to define the psychology of a nation, because psychology is, in its very essence, vague and indefinite. When we think of the American, English, or Russian people, a certain picture, it is true, rises before the mind; but the outlines are so wavering and intangible that it is almost impossible to express this picture in words. The funda-

mental difference between people is marked far more by their manner of feeling than by their manner of thinking. But how are we to define in words this manner of feeling on the part of an individual, and, still more, that of a nation composed of millions of individuals?

But if the psychology of any people in general is difficult to determine, that of the Russian people in particular is very much more so. In the first place, we may ask ourselves, "What is the Russian nation"? It is a union of Slav populations inhabiting the northeastern part of Europe, a part of the Caucasus, and Siberia. But this branch of the Slav race is further divided into three great branches: the Great Russians, Little Russians, and White Russians. Some ethnographers and linguists maintain that the Little Russians should not be considered part of the Russian nation, but as an independent Slav nation, just like the Czechs and Poles. And here a new obstacle confronts us. We shall overcome it, however, by limiting ourselves in this essay to speaking of the Great Russians. This will be the more legitimate, since they form much the most numerous and important branch. The Great Russians compose more than two thirds of the Russian nation in general. There are about fifty millions of them, and they have also the advantage in intellectual development. The Great Russian dialect, the Muscovite dialect, is now the literary language of all Russia, the language of Pushkin, of Lermontof, and of Tolstoi.

Imagine an instrument for measuring the intellect and morality of men. Imagine that with the aid of such an instrument we had measured the intellect and morality of *all* the Americans, of *all* the English, and of *all* the Russians. I am convinced that we should obtain very similar averages. No one can dispute the fact, however, that at the different epochs of history, some nations may be more advanced than others. But the nations which are most in advance at a certain period may not be so at another. The Italians were much in advance of the English in the fifteenth century, which would seem to show that the psychology of a people is not immutable, and can hardly be definitely

determined once and for all. Like a living existence, a people is continually changing; so that what we say of it to-day may be no longer true of it to-morrow. Hence a new difficulty arises in determining the psychology of a nation.

But the reader will doubtless inquire, "Since you recognize that so many obstacles lie before you, why undertake this task?" I do so at the solicitation of the Editor of this Review, and the precise object of these preliminary remarks is to secure the reader's indulgence for the imperfection of my work.

If the opinions stated in the following pages are not clear and well defined, if inaccuracies and contradictions appear there, it is for the reason that, in the nature of things, it is impossible to trace with geometric precision the outlines of a popular psychology. Life is a continually changing metamorphosis. He who speaks of living things must perforce limit himself to approximations more or less vague, and which little resemble algebraic theorems.

I. RACE AND TEMPERAMENT.

The Russian Empire contains more than sixty-five independent racial groups. It is a veritable Tower of Babel. Even with the omission of Siberia and Central Asia, there remain in Russia in Europe, and the Caucasus alone, forty-six different peoples. In the northwest, the Fins; in the west, the Lithuanians and Poles; in the southwest, the Roumanians; and in the east, on the banks of the Volga, numerous groups of Uralo-Altaic populations: the Tcheremisa, Mordva, Votiaki, and Permians. In the southeast, there are the Tartars in Crimea, and Greeks on the sea of Azof. Add to this the sporadic groups of Germans and Jews. All these numerous elements have in a great measure commingled. The history of Russia is the reverse, properly speaking, of that of the United States. While in America there is an Aryan invasion proceeding from east to west, in Russia there is an Aryan invasion going from west to east. The centre from which the Slav emigrations set forth seems to have been the region of the Dnieper and Galicia. The upper tribu-

taries of the Dnieper were settled first. The Slavs then reached the Baltic and founded Novgorod the Great. Later (from the eleventh to the thirteenth centuries) they invaded the basin of the Volga and founded successively Moscow, Nijni-Novgorod, Saratof, and many other cities. This movement is still going on. The American "Far West" has a counterpart in the "Far East" of Siberia. Nearly two hundred and twenty thousand Russian colonists settle there every year. But while the Aryans of America have almost exterminated the autochthonous population of the Redskins, the Russian emigrants have commingled with the ancient autochthonous populations of eastern Russia. The Russian people is thus, in its sum total, a mixture of Slavs and Fins.

Given such conditions, it is very difficult to determine the physical and physiological type not only of the Russian people in general,¹ but also of the Great Russians in particular. Are the latter dark or light? To tell the truth, they are both. According to the researches of ethnographers, we see that the number of Great Russians with dark hair, varies with the different regions, from fifty-one to fifty-seven in a hundred. These dark shades, furthermore, cover the entire scale from raven black to light brown. The same is true of the eyes as of the hair. Every shade is to be met with among the Russians, with a predominance, however, of grey eyes. If we consider blue and grey eyes as belonging in the category of light, and brown eyes as belonging in the category of dark colored ones, we must confess that, although in a slight degree, light shades rather predominate among the Russians.

As to the conformation of the skull (to which is now attributed an importance which is as exaggerated as it is arbitrary), all types thereof are to be found in Russia. We find there the brachycephalic type, the mesaticcephalic, and the dolichocephalic.

(1) We have already seen that they are divided into three great branches: the Great Russians (about fifty millions), the Little Russians (about twenty millions), and the White Russians (about five millions.)

But the archæological researches of recent years, which have been very accurate, are responsible for a singular discovery, to the effect that in ancient times in Russia the dolichocephalic type predominated, and that in recent times it has been continually decreasing. This remark completely subverts certain modern theories, in accordance with which the number of the dolichocephalic type increases with the greater development of intellect. It may be maintained, however, that the Great Russians are more dolichocephalic than the Slavs of the south,—the Bulgarians and Servians.

Of what race, then, are the Russians? It is very difficult to say. In the first place, there is no longer a single pure race in Europe; but of them all, the Russian nation is certainly composed of the greatest number of races. Into the vast plain which serves as its country have rushed a thousand different peoples. The modern Russians are a most complex mixture, whose constituent elements it is impossible henceforth to distinguish. There is an analogy in this respect, also, between the Russians and the Americans, who are a product of the crossing of all the races of Europe, Asia, Africa, and the new continent.

Granted that the race of the Russians is so difficult to determine, it is even more difficult to describe their exterior aspect and their temperament. Every type imaginable is to be met with in Russia. The choleric, the lymphatic, and the bilious. Apparently, however, (this is a personal opinion of the author's, for there are no statistics on this subject,) the lymphatic type predominates. In general, the Muscovites are very tall, have full forms, soft thick beards, and abundant hair. This would probably represent the average type of masculine beauty in the Russian race. The type of feminine beauty consists, also, in a rather lofty stature, and forms which are well rounded but neither slender nor graceful. While I am writing these lines, a type of the Russian woman arises before me. It differs from the American, English, and French woman, but a pencil is needed to draw it, and not a pen.

II. GENERAL PSYCHOLOGY.

Moreover, I am in haste to pass on to the psychical factors. The race and its exterior traits are of very slight importance in sociology, and for this reason I do not think it worth while to dwell long upon them.

But it will be easily understood that there are quite as many, if not more, difficulties to be met with on the psychological plane than on the physiological. If it is not easy to determine what colored eyes predominate in a people (for which direct observation only is required), still less so is it to determine the sort of character. On this subject we shall have to content ourselves with general approximations.

Keeping within these limits, we may venture to assert that one of the most prominent traits of the Great Russian character is an inequality of effort. It would seem as if the Russians had modeled themselves on the climate of their country, which offers the greatest extremes of heat and cold.¹ It has been known for a long time, that among the Russians, periods of eager activity are succeeded by periods of an almost insurmountable apathy.

Very often, in Russia, certain individuals are the victims of an intermittent alcoholism. They remain for months, sometimes, without drinking a drop of liquor. Then comes the period of alcoholism, and for a long time they are uninterruptedly tipsy from morning till night. For many Russians, too, this is their method of labor. They pass weeks doing nothing; and, then, all at once, they are capable of working thirty-six consecutive hours, and they then get through an enormous amount of work. Naturally, this remark applies rather to the wealthy and cultured, for the laboring classes of both city and country work regularly a fixed number of hours throughout the year. This inequality of effort is the trait among the Russians which will strike the stranger most forcibly. It seems to constitute a characteristic,

(1) At Yakootsk in Siberia, thirty-six degrees of heat in summer follow sixty degrees of cold in winter, which makes a range of ninety-six degrees.

as it were, of the Great Russian mind. It is in no sense a fatality inherent in the race, as the exponents of certain pseudo-scientific theories maintain. This inequality of effort is the result of historical circumstances, and when these circumstances shall have been modified it will disappear. What I have said as to the degree of morality may be repeated of the amount of energy. This amount is evidently present in equal force in every nation, but according to the bent given by historical circumstances, one nation may possess more of it at a given moment than another. Until the sixteenth century, the English were known for their indolence and apathy. The Florentines who went to England in the fifteenth century found the English positively inert. The great activity of the American people in our own time comes, in great measure, from their realization of the magnitude of the task which lies before them (an entire continent, immense and amazingly fertile, to people and cultivate) and the political facilities which they enjoy. The Russians have a territory more vast and fertile even than that of the Americans and quite as uncultivated. There is, then, no lack of work for them. Unhappily they have not yet had a chance to have free play, from a political point of view; hence their state of apathy and discouragement.

But should there come a more fortunate period in their history, it is quite probable that there would be found no less persistency of effort among the Russians than among the Anglo-Saxons. Even now certain individual proofs of this may be seen, for inequality of effort is very far from being a universal fact among cultivated Russians.

If the Russians often experience these periods of apathy, we may at least exhibit in contrast with them some examples of a force of energy, calm and tenacious, which serves to overcome all obstacles. Cases of this may be frequently observed among the men, though that is but natural. *Per contra*, they are much more remarkable when found among the women. For the Russian woman has given some admirable examples of heroism. Struggling at times against much greater obstacles than her American sisters,

she has succeeded in obtaining an important place, notwithstanding, in science, art, and literature. Generally speaking, the intellectual emancipation of the Russian woman, at the present time, seems to us in advance of that of the German, French, Italian, or English woman. The American woman alone, with her high mental culture, seems to us able to bear comparison with the Russian.

What is, in our day, the dominant trait of the Russian woman? It is very difficult to say. All traits meet in her. Unquestionably that of a formal sentimentality no longer predominates, as it did at the beginning of the nineteenth century; but it is almost impossible to determine just what type of woman is acknowledged to prevail at the present moment in Russia.

III. SENTIMENT.

From the point of view of sentiment, we may say that a large amount of good nature is very characteristic of the Russian. Of all the peoples of Europe, this is, perhaps, one of the least cruel.

I know that such an opinion has almost the air of a paradox. The Russian people have an execrable reputation. The knout, Siberia, the extreme severity of the government, intolerance, Poland, the sufferings of the Nihilists, the persecution of the unhappy Jews,—all this has given the Russian nation a reputation for universal cruelty.

In order, therefore, to have my opinion respected, it will be necessary to support it by facts. I shall allege, in the first place, that you never observe among the Russians any popular sport of a brutal character,—such as cock fights, bull fights, or even boxing, or pugilism. Neither are customs like “lynch law” to be met with, which, though certainly justified by the social exigencies of the times, is nevertheless a very cruel practice. In this summary course of procedure, the penalty of death is very often inflicted for offences which, in truth, hardly merit so terrible a punishment. Another proof of the gentle nature of the Russian people is the security which reigns, both on the high roads and in the country districts. Within the memory of man,

there has not been a region of Great Russia which has been permanently infested with brigands. Night and day, one may traverse the most lonely roads with a sense of perfect security. Crimes are occasionally perpetrated, but only in sporadic and individual cases. For centuries, now, there has not been seen in Russia a social condition such as was presented recently by Spain, the Kingdom of Naples, Sicily, Greece, and such as Turkey still presents. The only portion of the Russian Empire where highway robbery still exists, is in the southern part of the Caucasus ; but there it is practiced by the indigenous populations, and more often by the Mussulmans.

Every one knows the feelings aroused in the lower classes of the Russian population by those who have been judicially convicted. It is pity, with which hardly an atom of hate or resentment is mingled. Finally, we must observe that Russia was the first to suppress the death penalty for offences against the common law.

It may be stated, further, that, in many cases, the Russian administration is rather badly run, precisely because of the natural good nature of the nation. The chiefs are sometimes so complaisant that they not only cannot make up their minds to dismiss their subordinates, but often do not even have resolution enough to censure them. The public service naturally suffers. It is the same with pensions. The municipal and provincial council boards are extremely lavish with them. Very few people have within them the courage to refuse, categorically, such help when demanded, even though this may not be absolutely needed. Numerous abuses proceed from this goodness of character.

Whence comes it, then, that the Russians have so great a reputation for cruelty ?

From several causes. In the first place, we may observe in them the same trait in point of sentiment as in point of mental activity. The Russian is very unequal. If carried away, under certain circumstances, until he is quite beside himself, he may commit the greatest excesses. The Russian is less master of himself than the Anglo-Saxon. But these very acts of cruelty,

which are very uncommon, make the greater impression the rarer they are. The public likes to generalize, and is apt to consider as an habitual trait of character what is for the most part exceptional. I do not mean that there are no cases of cruelty among the Russian people, and that they are better than any others. No; I only wish to say that, as is very commonly believed, they are no worse.

Aside from the inequality in his character, there are several other causes which lead to a belief in the cruelty of the Russian. In the first place, facts of a political nature. When it is a question of reasons of state, the sentiment of pity seems to vanish. Severe legislation is believed to be necessary, in order to save the state, and thus all pity seems a culpable weakness. If our ancestors, in the Middle Ages and up to within comparatively recent times, had such harsh penal legislation, it is not that individually they were any worse than we are; it was only because they believed such legislation indispensable. Russia, having developed more slowly than other nations of the West, preserved longer certain archaic and cruel institutions, like slavery and corporal punishment. All the European nations have had, at some time, penal laws as barbarous as those of Russia; but they have sooner given them up. The sight of the Russian inflicting very severe punishments, already forgotten in the West, is the source of the inference that they were more cruel than the Occidentals. This was not the case; they were only less advanced in point of ideas. They still believed these barbarous punishments to be necessary, after the other nations no longer shared their error.

And, then, the Russian government has an execrable reputation; since nearly all the civilized countries have become constitutional, and Russia has not, the line has been drawn, as it were, between the Russian government and the others. The former is in nowise the most cruel, but it is believed to be so. And, then, the Russian government commits one great fault: it judges political offences with closed doors. There may thus naturally be put to their account a whole series of cruelties which they have never committed. I am convinced that the number of

individuals sent to Siberia for political crimes, during the whole course of the nineteenth century, does not exceed, perhaps, three or four thousand persons.¹ But the figures current in public opinion in the West are infinitely larger. Of course these figures are hypothetical. People speak with the greatest fluency of fifty or sixty thousand persons a year. Human imagination has no limits!

The political prisons of Russia have everywhere an execrable reputation. It is true that here and there revolting cruelties may be found. Political convicts are deprived, unhappily, of all legal protection. Their fate depends upon the personal character of the individual who is in charge of their prison. And among these individuals are to be found some who are monsters. But, generally speaking, I believe that political prisoners experience no worse treatment in Russia than in other countries.

If we examine closely certain special cases, we may convince ourselves that the Russian government is no more cruel than any of the others.

The reputation for severity of the Emperor Nicholas I., is well known. It was so terrible that a certain English author was amazed to learn that he was an excellent father of a family and was very fond of his children. It seemed to this author as if Nicholas I. were a vampire, thirsting for blood. Let us see the facts. The Emperor Alexander I. died, in 1825, without issue. His younger brother, Constantine, having renounced the throne, it reverted to the third brother, Nicholas. But Constantine's renunciation was not generally known. On the death of Alexander, the oath of allegiance to Constantine was taken by many official bodies in St. Petersburg. A few superior officers of the guard availed themselves of this circumstance to incite the troops against Nicholas, and to make the attempt to suppress autocratic power in Russia. This is what is called the Revolution of De-

(1) This is a purely personal opinion, for precisely in consequence of the very mystery with which the Russian government surrounds itself, there is no accurate information to be had on this subject.

cember. After Nicholas had subdued them, he caused the officers who had revolted against him to be tried. *Five* only were condemned to death and executed. Thus a revolt of the *army* against their *legitimate* sovereign (for that was how Nicholas I. regarded it) caused the blood of but five persons to be shed, and this in barbarous Russia, and by one of her most cruel monarchs.

Let us see what was passing in the countries of the West at this same period. I shall not speak of France and the Revolution. Such a comparison would be impossible. There, *under a mere suspicion*, people were sent to the guillotine. The great poet André Chénier was beheaded for sympathizing with the Royalists, and also because he had written some verses against the members of the National Convention! But, long after the "Terror," the French government had become no more beneficent. In 1824, four unhappy sergeants were executed in France only because they were members of a secret society. Is it necessary to recall the summary military execution by the Austrians in 1848? How many victims then perished! And no vulgar conspirators either, but noble warriors who had fought openly and bared their breasts to the enemy. But of all the European nations, Spain assuredly holds the palm for cruelty. In 1824, seven Free Masons were there executed, simply for having held a meeting! In 1831, a young man was hung for having cried "Hurrah for Liberty!" A *woman* was hung in Granada for having embroidered a flag with the inscription, "Law, Liberty, Equality." Such examples might be multiplied. But these which I have just cited are sufficient, it seems to me, to show that the Russian government is far, indeed, from being as cruel as those of Western Europe. Simply because it is autocratic, while the others are constitutional, it enjoys a reputation which it does not always merit.

What I have just said is to prove what I have already advanced on the subject of the good nature of the Russian people. But, in consequence of the unevenness of character which is one of their dominant traits, this habitual good nature may be transformed

at times into very great brutality, as I shall have occasion to point out when I come to speak of politics.

Next to their good nature, one of the most universal traits of the Russian people is a large share of melancholy and sadness. The life of the Russian is far from being a very happy one. The country itself is not cheerful. During six months of the year, it is shrouded in snow, and, in Summer also, the coloring is rather dull.

The great pine forests which occupy all the northern part have a melancholy aspect. But even the caducous species which prevail in Russia (the birch, for example,) have not very brilliant tints. Elsewhere the surface of the ground is gently undulating. The country is completely lacking in relief and character. The eye glides, as it were, over infinite spaces which lose themselves on the horizon, and seeing no landmark, one is overcome as with a vague feeling of unrest.

History has been even more severe upon the Russian people than nature. Russia has been, during long centuries, exposed to the inroads and predatory incursions of the nomadic tribes of Asia. The last invasion of the Tartars of Crimea into Russia in Europe took place in the second half of the eighteenth century. Up to comparatively recent times, the Russian people have lived under an entire sense of insecurity and constant apprehension. To the invasions of the nomads is added another terrible enemy of the Russian,—fire. Russia has almost no stone, but possesses on the contrary immense forests. Naturally most of the dwellings there have been built of wood. With wood, conflagrations are inevitable, and this plague destroys fifty million dollars worth of property every year. Naturally the country villages suffer most, and as there personal property is rarely insured, it will be seen that it is the poorest class of the population which is the most cruelly affected.

The fact that the Russian people have this constant sensation of international insecurity has been the means of driving it to granting so large a measure of authority to the central government. As the officials have not been slow to abuse this power,

the Russian people have been obliged to submit to innumerable vexations. Add to this, serfdom, which was introduced in 1596, and which has been the cause of the most horrible injustice and abuse. In consequence of these and many other circumstances, which it would be impossible for me to set forth here, the Russian people has in truth been one of the most unfortunate upon the face of the earth. History has stamped it with a large share of melancholy, combined with a profound resignation, and with a fatalism which is manifested in a thousand different ways. The Russian, at times, allows his life to glide along just as it happens, without even making an effort to react against his sad destiny. He seems to be constantly asking himself, "What is the use?"—to be constantly consoling himself with the reflection that "such is the inevitable order of things." On the other hand, when he makes up his mind to act, his fatalism causes him to have great faith in his lucky star. The "go ahead" of the Americans has its counterpart in the Russian "avos."¹

It is said that fatalism conduces to acquiescence. This is not always true, for that it sometimes provokes to action, we must admit. Together with evidences of an extreme conservatism, the Russian people give also at times proofs of an endless spirit of adventure, so to speak. The occupation of Siberia is one of the best examples of this. Single individuals have, during more than three centuries, been in the habit of venturing into this region, and have been stopped only on reaching the polar ice and the waters of the Pacific Ocean. The occupation of the Russian Far East has been much more difficult than that of the American Far West, if only for the reason that the greater part of it was undertaken in the seventeenth and eighteenth centuries, before the advent of steam and telegraphy.

It is true, then, that melancholy and fatalism are characteris-

(1) "Avos" is an adverb which exists in no other language. It corresponds to the French expression "*à la grâce de Dieu*." More literally it means "perhaps"! The "*Quien sabe*" of the Spanish is an analogous expression. "Perhaps it will succeed, let us risk it!" is the complete meaning of the word "avos."

tic traits of the Russian people, who certainly cannot be ranged among the cheerful nations of the earth. The Russian has also, however, times of mad exuberance, when he abandons himself entirely to pleasure. At such times the inequality of his character is apparent in its greatest extent.

There may be observed among the Russian people a large element of generosity. The Russians are fond of saying that the national mind is singularly free from all niggardly elements. Exceptions are doubtless in evidence here and there; some are to be found who are very economical, and there are even misers, but that is not the dominant type of the nation. In the immense majority of the cases, the Russian is hospitable, and thinks nothing of the expense when it is a question of his own amusement, or that of others. A great many Russians, too, live beyond their means, and are in constant pecuniary embarrassments. And generosity in money affairs is duplicated by a universal generosity in personal relations. The Russian is generally very tolerant in social intercourse. He is lenient in judging the conduct of others, and easily overlooks violations of morality committed by his associates. Austerity has but a small place in his conception of things. Many foreigners, the English above all, are amazed at the tolerance which reigns in Russia with regard to social affairs. Society exercises but a feeble restraint upon the individual, and permits him to live as seems best to himself. Whether a person goes to church every Sunday or not, is something about which people trouble themselves very little in Russia. One might say that to compensate for their lack of political liberty the Russians allow themselves a very large share of social liberty.

Thanks to the good nature and tolerance of the nation, social intercourse is marked by a spirit of great cordiality among the Russians. Among their equals, they call each other by their Christian names, accompanied by that of the father, with a termination which shows the affiliation, as, for example, Alexander Nicolaevitch (Alexander, son of Nicholas). This custom lends great simplicity to the intercourse between individuals, for it is almost invariably used even between people of different hier-

archical rank. Thus, in society for instance, between officers and generals, when off duty. The appellations which are used in dealing with the common people are also very caressing: "bat-iouchka" (little father), "goloubtchik" (little pigeon), etc., etc.

In general, a certain democratic equality pervades the intercourse between classes even of a very different social status. There are, however, unfortunate exceptions to this. Many Russians belonging to the former generation have not yet given up the custom of addressing the common people with "thee" and "thou," though this remnant of former lack of courtesy shows, happily, an increasing tendency to disappear.

Having discussed their good qualities, I must now indicate some of the defects which are very frequent among the Russians. They are usually very careless, both in their dress, and more particularly in their business affairs. They have little of the systematic temperament. They are also very prolix, and have no more idea how to introduce order into a statement of their ideas than into the management of their households. The Russians also have rather an indifferent idea of punctuality, and do not yet appreciate the value of time, for themselves, nor, unhappily, for others. Neither is their good faith very extraordinary, and in economic relations it is often necessary to take many legal precautions when dealing with them. "Time is money," and "Honesty is the best policy" are proverbs which have not as yet received a very general application in Russia. It must not be supposed, however, that the level of morality in business affairs is at all like that to be found in Spain. Certainly not! One may even point out some sufficiently conspicuous features of honesty. Thus, private individuals, in making payments, often give rolls of gold wrapped in paper. These are usually taken without being opened, and it is very rare that there is any cheating. This is no longer true, however, of cheques. These are carefully verified by the banks, before being paid.

IV. INTELLECT.

We pass now to the domain of thought, which is the proper sphere of a national psychology. I shall dwell somewhat longer upon this; I shall speak of both philosophy and religion, but only briefly, of course, as comports with the limits of this article.

Beginning with philosophy, I shall observe, in the first place, that Russia has produced no great original philosophical system, like that of Descartes, of Leibnitz, of Spinoza, or Hegel. Doubtless the absence of the liberty of the press has in a certain measure contributed to this result. A Russian book, in which it was said that Jesus was merely the son of Joseph, a carpenter at Nazareth, would not be suffered to pass by the censor. It will be understood that under such conditions as these, it would be somewhat difficult to produce a complete system of philosophy, to state one's ideas without reserve, and with the purpose of saying only what one believed to be true. The fact, however, should be taken into consideration that Descartes, Spinoza, Leibnitz, and Voltaire wrote at a time when censorship was hardly more tolerant than it is in Russia to-day. In reality, researches which are purely abstract into the domain of psychology or metaphysics, receive a sufficiently wide toleration in the empire of the Czars. Besides, if a Russian author were unable to have his philosophical works printed in his own country, there would have been nothing to prevent his having it done in a foreign one.

The absence of great philosophical systems may be easily explained, moreover, in other ways. Russian thought began to mature in the second half of the nineteenth century. But at that time the construction of great philosophical systems had been, so to speak, given up. The last great system of Europe,—that of evolution,—formulated by Herbert Spencer, is rather a systemization of the sciences, in accordance with a general plan, than a philosophical construction in the true acceptance of the term.

In any case, whether owing to the influence of obstacles of a political nature, or that the historical era was not propitious, it is

still true that Russia has produced no national philosophical synthesis. There is, as yet, no system which may be called the purely Russian philosophy. It is sufficiently difficult even, to discover which of the great systems of Western Europe is really most highly esteemed in Russia, and possesses the greatest number of adherents. Heine said that the real philosophy of Germany was Pantheism. We should be quite at a loss to formulate any such proposition in regard to Russia. Without contrasting doctrines as opposed to each other such as Deism and Pantheism, one would find it very difficult to say whether the Russian mind is more mystical or positivist. A great number of observers, especially foreigners, would incline without hesitation to the theory of mysticism. The Russian mind seems to them to have something about it, the outlines of which are indefinite and not to be distinguished from the mystical.

This is the case, above all, in politics, as I shall have occasion to show later. To say, however, that mysticism is the most pronounced, or even the wholly predominant trait of the Russian mind, would not be absolutely true. There is in it, also, a very strong current not only of realism, but even of positivism. A large number of Russians regard metaphysical and mystical abstractions with a contempt as profound as it is unfeigned. When statistics are taken of the blonds and brunettes among the Russians, it is seen that fifty-one in a hundred have dark hair, and forty-nine in a hundred have light hair. If statistics of the Russian mind could be taken, it would perhaps be found, also, that out of one hundred individuals forty-nine were mystics, and fifty-one positivists. But, of course, such a table of statistics is out of the question. We must turn, then, to the publications and teachings of philosophy.

Of what has been written we must, of course, notice the different periods. Toward 1840, Russia was in great part Hegelian. Later, toward 1860, there was a violent outbreak of Materialism. Büchner and Moleschott enjoyed there an enormous prestige. A constellation of Russian publicists, with Pisemski at the head, threw themselves with ardor into the Mate-

rialistic movement, putting the greatest amount of fervor into undermining the ancient idols. It was, to a certain extent, from this intellectual tendency that Nihilism sprang. When, after the assassination of Alexander II., Nihilism again subsided, it seemed as if Russian thought turned away from great speculations. For more than twenty years, Russia has seemed to live without a philosophy. Herbert Spencer's theory of evolution has gained some adherents in Russia, as well as some of the other systems, but without penetrating as deeply into their minds as the Materialism of Büchner and Moleschott.

No remarkable original work, consecrated to philosophy, has appeared in recent years, in Russia. Tolstoi, after having written very remarkable novels, has published different articles on religion, in which he has been led to consider certain philosophical questions; but he has done so only in passing, without devoting any great amount of attention to them.

What is in store for the future? After the lull and languor which have fallen upon Russian thought, at the present time, what may be expected to happen? Let me venture an hypothesis which I admit in advance to be a purely personal intuition. It seems to me that Monism will be the future philosophy of Russia. This doctrine appears to me to be the one which will be most probably accepted by all other countries, and, I think, it will end by conquering Russia also.

If, after the philosophy, I am asked what is the religion of the Russians, I shall be even more at a loss for a reply.

It may be said, in the first place, that there are almost as many religions in Russia as there are ethnical groups. In the Baltic provinces and in Finland, Protestantism prevails. Poland is Catholic. In the ancient principality of Lithuania, (the western Russia of the present) the nobility and the upper middle class are Catholics, the peasants in the country districts orthodox.¹

(1) You know that this is the name by which that branch of the Christian Church, which in the fifth and sixth centuries separated itself from Rome, is called; the Greek Church of the East, denominated *schismatic* by the Catholics.

In the south there are the Mussulmans in Crimea, in the east Mussulmans again, on the banks of the Volga. Add to this four or five million Israelites, scattered throughout the western provinces of the empire, and Protestants again on the banks of the Volga, recruits from the German colonies.

Officially all Great Russians are orthodox. Russia is still unhappily a confessional state in every sense of the word, and suffers the unfortunate consequences thereof. The laws are made to uphold orthodoxy. Above all, the Sovereign and his family must be orthodox. The state protects this form of religion by a set of laws, which practically abolish liberty of conscience in the Empire of the Czars. Replying to a petition which had been addressed to him in favor of toleration by an English society, Mr. Pobédonostzef, the procurator of the Holy Synod,¹ replied that religious toleration was the fundamental rule of the Russian Empire. In making this reply, he was evidently playing upon words. It is true that Catholics, Mussulmans, and Israelites are authorized to practice their forms of worship in Russia. But any person who tries to convert a member of the Orthodox Church from his faith, even in the interest of another Christian profession, is liable to exile in Siberia. If the conversion be in the interest of a non-Christian religion, it is forced labor for eight or ten years. Toleration must be interpreted in a very narrow sense to be understood in the merely passive way

(1) The Russian Church is administered by a superior council of three archbishops nominated by the Emperor. The Emperor has, besides, a delegate in this council, who is the procurator of the Synod. In reality all the power in administrative affairs belongs to the procurator. It is said that the Emperor is Pope in Russia. If it is meant by that that the Emperor interferes in dogmatic questions, nothing is more untrue. Never has the Emperor of Russia shown any intention of modifying one iota of the canons of the Church or of the ritual. But, as regards the administration of the Church, this is indisputably in the hands of the Emperor. The nomination of the bishops cannot be made without his consent. Owing to this power he is able to remove any ecclesiastical dignitary who shows the slightest inclination toward independence.

in which M. Pobédonostzef understands it. No religious liberty consists in recognizing the sacred and inviolable right of the individual to preach what seems to him to be the truth.

Russia is, at the present moment, then, an orthodox confessional state, just as England was formerly an Anglican confessional state.

Let us see, now, what position is held in Russia by this orthodoxy, which the government takes under such excessive protection.

I do not think it will be paradoxical to affirm that orthodoxy is the religion of a very small number of the Great Russians. This is what I mean. Greek Christianity has been preached in Russia since the tenth century. And notwithstanding the long period which has since elapsed, it may be boldly asserted that it has not yet penetrated into the conscience of the whole Russian people; that is, to no greater degree than has Catholicism into the conscience of some of the Western nations, like the Italians, for example. Out of one thousand Russians, eight or nine hundred (counting the women also) would not know how to recite, even mechanically, the Nicene creed. If the individuals here referred to were asked in what they believed, their reply would be but little suggestive of Christianity. Of the one hundred Russians out of the one thousand who might know the Nicene creed, there would be, perhaps, barely ten who would understand its literal meaning, and *one*, perhaps, who would understand its doctrinal meaning. But, three quarters of the time, those who thus understand it entirely believe no longer therein.

In reality, Christianity is merely a veneer in Russia. It has not as yet penetrated to the consciences of the lower classes, and it is already given up by the upper classes of the nation. Conscientious Christianity is the portion of a very small minority belonging to the middle class and the inferior nobility.

But we know how little important is dogma in religion. What man ardently seeks in a faith is, first, a protector and then that special and exalted emotion called religious sentiment. The

more unhappy a people is, the less they can obtain justice here below, the more do they appeal to Heaven for it. We have said before that the Russian people was but poorly provided in the matter of happiness. They live in a severe climate, which permits of little indolence and little of the *dolce far niente*. On the other hand, much of Russia is but moderately fertile. The Russian people is no better off with regard to politics. The nation has practically no resource from the arbitrariness and exactions of officials, who take both their time and their money. It is natural that this people should feel more than any other the need of having recourse to divine protection. They address themselves to God, to Jesus Christ, to the Virgin, and to the Saints. Hence the great amount of devotion to be observed in Russia, the pilgrimages, the worship of miraculous images, the crowds of people who flock to the churches.

On the other hand, adoration is the act which satisfies the necessity for religious exaltation inherent in the human soul. The Russians give themselves up more ardently to exterior forms of worship than do the French, the English, or the Americans. This comes, it seems to me, from the fact that its civilization being less advanced, the only means of satisfying its emotional needs which it possesses, is religious worship. But these forms of worship have upon them a purely hypnotic effect. The Russian people understand almost nothing of what the priest is saying during Mass. They probably do not know even that the orthodox Mass is a commemoration, symbolical of the sacrifice made by the Son of God to redeem mankind. The Russian priests make every effort to give the parts of the Mass which are read in a totally incomprehensible manner. They are perfectly right in this, for if the words of the service were clearly understood they would appeal directly to the intelligence, and would not produce their intended effect, namely, a purely sentimental suggestion. The orthodox Mass is singularly ritualistic. It is no living condition, but is congealed within forms which have endured for centuries. The Eastern Church sustains the principle that what is true cannot change. Thus she modifies in no

particular, either her form of worship or her dogmas. Preaching is disappearing more and more in the Russian Church. Sermons are given only on rare occasions. There are two reasons for this. First, because preaching has very little object, when it is asserted beforehand that there is not an iota of anything to change in the traditions of the past. Jesus, on the contrary, it is true, modified or obliterated that which had been "said to them of old time," by his own "I say unto you"; and it was just to maintain this new doctrine, which had not been said to them of old time, that Jesus preached his sermons. If it had not been for that he would have had no reason for speaking. The second circumstance which has caused preaching to be given up by the Russian church is the distrust of the government. The priest who wishes to deliver a sermon must first write it, and then submit it to the approval of his bishop. Then only may he read it in church. But he is forbidden to say anything more than what he has put down in his notes; he may not improvise, or let himself go, under the inspiration of the moment, and speak freely. One may imagine that, under such circumstances, very few priests in Russia care to submit to the drudgery of delivering sermons, and when they do decide to do so, the faithful listen to them with the most profound weariness. First, because they are generally delivered in a cold, monotonous tone, and because, too, nine tenths of the time they are utterly meaningless. The absence of liberty has killed the eloquence of the pulpit in Russia.

We may make still another observation which will show how little Christianity has entered into the Russian soul. For the nine centuries during which they have been Christians, the Russians have not introduced one atom of life into orthodoxy. Look at France and Catholicism. During the Middle Ages, and in modern times, France has repeatedly been a leader of Catholic thought. The University of Paris has, at different times, possessed the most remarkable theologians of Western Christianity. There has been nothing like this in Russia. There, they have accepted the Byzantine ritual without change. The Russians have confined their pride to interpreting the Greek texts with the

most complete and servile literalness. The Russian Church has not, in its nine centuries of existence, given to the world either a great theologian, or a great doctor of the faith, or a saint who is at all remarkable or out of the ordinary, or a celebrated missionary, or even a great preacher. The only new element which the genius of the Russian people has introduced into the mummified body of the Orthodox Church is music. There, they have been creative, and wonderfully creative. The celebrated musician Berlioz, after hearing Mass sung by the choir of the cathedral in St. Petersburg, cried out, "I do not know how they sing in Paradise, but it seems to me that it cannot be very much better than this." The music of the Russian Church, which developed especially at the close of the eighteenth and beginning of the nineteenth century, forms an entirely original school; it derives inspiration from no other, and its grandeur is at times as wonderful as its originality. The Russian Church allows no instrument to be used in its service; not even the most divine instrument of man's invention,—the organ. The entire Mass is thus sung by choirs, with no accompaniment, and even by choirs composed entirely of men, in which little boys take the soprano and contralto parts.

Is the Russian people, then, essentially religious or free thinking? Foreigners would all reply with one voice, "It is religious; it is even the most religious of the nations of Europe." Certainly, to judge by appearances (the only thing by which a stranger can judge, since he must look on the outside only), the Russian people are very religious, for it is prodigal of its proofs of devotion. But there are many signs, too, which indicate their complete indifference in matters of religion. You must know, first, that in Russia the Church alone holds the records of the civil State, and that she alone can dispense certain sacraments which are of the greatest civil and political importance. There is no marriage in Russia other than the religious one. Consequently, there is no other way of contracting a legal marriage than by going to church. Baptism is also of enormous importance. It alone can establish the affiliation which transmits hereditary

rights, civil as well as political. In Russia the citizens are divided into several different social classes (peasants, artisans, merchants, nobles, etc.,) whose privileges are far from being equal. There are, besides, the "non-Christians" who are there deprived of a great number of rights.

Since the certificate of baptism constitutes the sole act of the civil State, its importance may be readily understood. A Russian belonging to a family which is officially orthodox may be in vain the most liberal thinker in the world; it would be impossible for him to neglect having his child christened, for without that, it would not be considered legitimate.

The Russian clergy are not paid by the State. The expense would be beyond its means. There are nearly three hundred and twenty-five thousand parishes in Russia. Now, if each had a single priest, and he were given but five hundred dollars a year, it would necessitate under this head alone an annual expenditure of one hundred and sixty-two million dollars, which would be about a *third* of the ordinary Russian budget. For their support the priests in the country have had assigned to them two sources of revenue: a plot of ground, which they may cultivate on their own account, and sometimes with their own hands, and the traffic in sacraments. The priest seeks, naturally, the greatest amount of profit possible. He sometimes exacts for christenings, and particularly for marriages, fees which the peasants are not always able to pay. Bargaining begins. There are cases where young people are not able to be married for weeks and months, because they are unable to pay the sum demanded by the priest for the religious ceremony. It will be understood that such circumstances result in sufficiently unpleasant relations between the pastor and his flock. And, notwithstanding these exactions, the Russian priest remains generally very poor, for the reason that the sheep which he may shear have unfortunately but very little wool. The Russian priest is ill-informed and rarely of much

(1) This name denotes above all the unfortunate Israelites, who, in these recent years of reaction have been reduced to being mediæval considered almost Pariahs.

elevation of character; he is married, and has many family cares; and by reason of all this, inspires but little respect in the faithful. By some he is detested as one who is continually taking advantage of them, and by others he is little respected on account of an obvious lack of moral superiority. The relations between the clergy and the faithful have thus no deep cordiality or sympathy in Russia.

Then, too, the churches are usually poor and plain. They are not open until the hour for service, and then are filled with people. The Russian (man or woman) in his hours of moral distress and anguish may not enter a church to collect himself and to pray. There are found none of those corners, isolated and at the same time inspiring, which are to be met with in so many of the edifices of Western Europe. On the other hand, it never occurs to any one to take counsel with the priest in moments of difficulty, because the orthodox clergy has so little prestige, and is so little respected. The priests, on their side, never go into the different families to speak words of kindness and consolation.

In consequence of this series of circumstances, the Russian is but moderately in sympathy with his national Church. There are millions of peasants in the country who might pass as utterly indifferent in matters of religion. Nor is the Russian woman more religious than the man. This is no more true of the lower than of the upper classes. It is never in Russia, for example, as it often is in France or Italy, where the husbands may be free thinkers, and the wives very devout, and even bigoted. The priest (contrary to what is seen in Catholic countries) obtains no power through the influence of women; in general his influence in society amounts to almost nothing.

There may be observed in Russia, even among the common people, the most complete irreverence in regard to holy things. The manner in which the peasants speak of the service and the priests borders at times upon the most biting sarcasm and the most absolute indifference.

But, nevertheless, a thousand facts bear witness that a deep

religious need torments the Russian soul, even to its inmost recesses. This is proved, first, by the multiplying of religious sects. Among the Catholics in France, Austria, and Italy there are no longer heretics or "non-conformists."¹ The last Western sect, Old Catholicism, has exhibited a very moderate amount of vitality. It died out in a few years. German Protestantism, too, seems to be irrevocably fixed within the limits established at the time of the Reformation. No breath of anything new has come to break through them.

The Orthodox Church in Russia, as a theological and dogmatic institution, is utterly dead. It confines itself to its forms of worship and the ritual. We might say that it was supported in a certain measure by right of succession, being preserved for economic and political reasons. The portion of the Russian population which has the deepest religious needs finds nothing to satisfy them in the established Church, which has been for centuries congealed within cold and hieratic forms. The aspirations of the Russian people, then, in matters of religion, rise far beyond the established Church, and are often in hostility to it. When the priest of a village is too eager for gain, when his conduct proves a source of scandal, when revolt and indignation are excited against him, peasants then separate from their pastor and throw themselves into the sects of non-conformists, as happened in England at the time of the Reformation. Some one appears, and begins to preach new doctrines based upon his own private interpretation of the Holy Scriptures. It is thus that innumerable sects have been formed in Russia. It would take too long to enumerate them here. They have all taken as a foundation the Old and New Testaments; but later, in the course of their development, they have

(1) There is another source of Russian non-conformity, and that is, the "Old Believers," or rather the "Old Ritualists." In the seventeenth century the patriarch Nikon caused the text of the liturgical books, which had been altered by the copyists, to be revised and corrected. Numerous persons would not adopt the corrections, and separated themselves from the official church under the name of the "Old Believers."

reached the greatest extremes. Some have returned to the forms of the primitive Church, and have no clergy. Others have become reconciled to Protestantism. Others still, by the strangest aberrations, have ended in practices which are monstrous and unnatural.¹

Whatever may be the aberrations of these sects, the intensity of their religious life is very great. One finds, too, among their adherents all the admirable qualities of the neophyte: an extraordinary sense of honesty, unlimited devotion, and a spirit of sacrifice amounting to martyrdom. A number of Russian sectarians has recently arrived in America. They are the "Doukhobory" (wrestlers with the spirit). They have preferred to leave their country rather than submit to the military service, which they believe contrary to the teachings of the Bible.

The Russian non-conformists are the honor and glory of their country. If anything could show the depth of power, of seriousness, of nobility, and of perseverance which exists in the Russian people, it would be these wonderful men. Unhappily the present government, misled by an immoderate love of external and bureaucratic symmetry, far from understanding that the non-conformists are the salt of the Russian earth, persecutes them in a thousand ways, which are sometimes as cruel as they are ineffectual.

Thus, after maintaining that the Russian people is one of the most indifferent in matters of religion, I proceed to make exactly the opposite assertion. And this contradiction does not spring from my own mind; it is in the facts themselves. Among an immense people like the Russians, all kinds are to be met with; sceptics as well as apostles full of faith and enthusiasm.

V. POLITICS.

From religion to politics the transition is not so abrupt in Russia as in the countries which are non-confessional. As the

(1) Those, for example, of the "Skoptzi," a sect which is founded on a literal interpretation of the twelfth verse in the nineteenth chapter of Saint Matthew's Gospel.

United States of America is preëminently the representative of the republican form of government, Russia is the recognized representative, so to speak, of the autocratic. Thus, the political writers of almost every country have founded upon this fact a series of far-fetched opinions, and have built thereon veritable sociological romances. They have advanced the phenomenon of heredity, of the innate inclination of the race, and a thousand other factors, equally imaginary, to prove that the Russian people have been moved to absolute monarchy *ad eternum*. They have piled demonstration upon demonstration to show that the only form of government conceivable by the Russian mind is autocracy, and that any other people in the world might pass from absolute monarchy to more liberal institutions. The Russian people, however, can never do so, as they allege, because of a certain peculiar mentality of their own.

This assertion will not survive for a moment an examination of the facts, if one take the trouble to look at these closely, and will not content himself with indulging in mere invective.

In the first place, autocracy is relatively a recent fact in Russia. The ancient Russian populations lived under the administrative of the clan. They then passed under the government of the city. The political authority of a certain region was concentrated in a central town (*oppidum*), which was usually fortified. The organization of the Russian city was republican. A popular assembly (the "veche"), whose conferences were rather tumultuous, gave a general approval to the measures which were proposed to it by a kind of senate. The Russian "veche" recalls, in many ways, the primitive assemblies of the Roman people in the Forum.

In the ninth century, Norman adventurers tempted their fortunes in Russia, as they had previously done in England, France, and Italy. One of these Scandinavian bands, commanded by a chief named Rurik, founded the first monarchy in Russia. The monarchical principle is, then, a foreign importation into the country. All the supposed predispositions of the Russian "race" for this form of government are thus purely imaginary. Rurik,

after having installed himself at Novgorod (which was, in his time, a republic with quite a flourishing trade), pursued his conquests. He descended as far as the Lower Dnieper, and made for himself a vast Empire. That is to say, he levied tribute upon different Russian cities. In accordance with the Germanic conception of that time, government was not looked upon as a public office, but as a matter of private ownership. Thus, the descendants of Rurik divided up their father's possessions as the sons of Louis le Débonnaire divided up the Empire of Charlemagne. The princes of the house of Rurik received as their share different cities, and each created for himself a sort of kingdom. But the primitive organization of the Russian city was not destroyed by the Norman invasion. Some of the towns succeeded in driving out the descendants of Rurik, and restored the republican form of government. Novgorod retained this form until 1480, Pskof until 1509.

Others of the cities kept their princes, but without conceding to them absolute power. The relations established between the prince and his people are not accurately known to us. Thus, in spite of the presence of the princes of the house of Rurik, the popular assemblies (the "veche") continued to exist in many of the cities. We hear of these assemblies where the prince appeared and decisions were made in common. In other places the "veche" disappeared very early. It is probable, then, that the relations between the prince and his subjects were not very clearly or distinctly determined. It appears, also, that the most diverse conditions prevailed in the different cities, and that very often everything depended upon the personal qualities of the reigning prince.

The princes of the house of Rurik disputed the heritage of the founder of their dynasty, just as the Carolingians disputed the heritage of Charlemagne. Even as Charles the Bald reestablished, at a certain time, the unity of the Western Empire, so did several of the Russian princes reunite a number of principalities, and attempt to restore the unity of the Empire of Rurik. But this attempt was neither a very determined nor a very permanent

one, and was, moreover, never crowned with very lasting success. The only thing established in a settled and permanent manner was the supremacy of the city of Kief. The prince who reigned there was considered the head of the family of Rurik, and, as such, exercised a sort of hegemony, something after the fashion of an honorary presidency. He held the title of Grand Prince. The actual authority of the Grand Prince over the other principalities amounted to practically nothing, but his moral authority, if we may so express it, did not fail to be sought after by the Russian princes, who, for a long time, disputed the sovereignty of Kief and the title of Grand Prince, which accompanied it. The dynasty which reigned at Moscow ended later by appropriating this title to itself in an exclusive manner.

Such was the situation in Russia in the twelfth century. She offered the spectacle of a series of almost independent principalities, with institutions which were badly administered, but in no sense autocratic. The advent of the Mongols occurred, and modified this state of affairs.

The descendants of Rurik never completely lost the idea of the unity of their Empire. They considered themselves members of one body, and felt themselves different from both the Asiatic tribes of the East, who were usually nomadic, and the settled populations of the West (Poles, Lithuanians, Germans, and Swedes). Thus, upon the arrival of the Mongols, the princes of the house of Rurik joined together to withstand them. They made but a feeble resistance, however, in consequence of the complete absence of any unanimity in their institutions. The Russian principalities knew not how to defend themselves, and all fell under the domination of the Tartars. The Republics of Novgorod and Pskof alone succeeded in preserving their independence.

The Mongols did not suppress the Russian principalities, but contented themselves with levying tribute upon them. But, none the less, the Mongol yoke was a very heavy one, because very despotic. Security disappeared forever for the people of Russia. Delegates from the Mongol Khan were continually

coming to demand the payment of new taxes. The least resistance brought down upon them expeditions which made a merciless use at every point of fire and the sword. And, further, bands of Mongol marauders constantly overran the country, and conducted forays on their own account.

A universal law of sociology receives its confirmation in the history of Russia. And this law is, that the power accorded to the central government is the direct result of the political insecurity of a country.

When the Russian populations were oppressed by the Mongols, they sought, naturally, the protection of their reigning princes. To them they looked to put an end to the incursions of the bands of marauders. The power of the princes would naturally increase from this very fact, for they must be furnished with the means of protecting the people, that is, they must have a stronger army.

Among all the Russian princes, those of Moscow (in consequence of circumstances which it would take too long to explain here) were found to best understand the protection of their subjects. Their reputation as faithful protectors spread throughout the whole of Russia, and secured for them both prestige and authority.

In the same way that the Germanic princes contended with one another over the territories in the heart of the Germanic Empire, the Russian princes waged war over those in the heart of the Empire of the Mongols. The princes of Moscow were aided by a series of fortunate circumstances. They made numerous conquests, aggrandized their state by dispossessing other princes of the house of Rurik, and became the most powerful in Russia. Their ambition increased with their power. They assumed the title of Grand Princes, and claimed again that moral hegemony which formerly belonged to the sovereignty of Kief. The princes of Moscow had difficulties also with their Mongol suzerains, and, as soon as they felt themselves sufficiently powerful, entered into conflict with them. They engaged in a number of battles, and in some were victorious.

The Russian people now began to foresee a possibility of ridding themselves of the Mongols by the hand of the princes of Moscow. They saw clearly that without a concentration of all the political power of the Russian people the removal of the Mongol yoke was impossible. They saw, too, that their safety lay in the unlimited power of the Grand Prince who reigned at Moscow. Thus, naturally, anything which increased his authority was looked upon as beneficial, while all that tended to weaken it was considered injurious, and therefore subversive.

Thus was the idea of autocracy implanted in Great Russia. It was not, as has been too repeatedly asserted, the result of an idiosyncrasy of the Russian "race." It was, quite simply, the result of certain historical circumstances. The law that political concentration is the direct result of insecurity of frontier may be demonstrated reversely by England, the exact opposite of Russia as to political institutions. The one is the most constitutional nation in Europe, the other the most autocratic. But England is, too, the country which is best protected by nature; Russia is the least so. Complete security for Russian territory was obtained only in 1881, after the defeat of the Tekke-Turcomans. Thus, only for nineteen years have the Russians enjoyed the inviolability of their political frontier, which is a natural possession of the English, thanks to their insular position. Liberty was early established in Great Britain for the reason that there has never been any necessity for conceding great military power to the King. The same may be said of the United States of America. It is their isolated situation, beyond the reach of European aggression, which has had a large share in enabling them to assume that admirable political decentralization and that personal liberty, which have contributed, in such large measure, to their prosperity. France is another proof of what I am saying. Her continental situation offers less security than that of England; thus, her organization has necessarily remained for a longer time autocratic.

The present situation in Russia is, so to speak, diametrically opposed to what it was in the past. After living for centuries

under the shadow of continual Asiatic invasions, it is Russia herself who now menaces her barbarous neighbors on her eastern frontiers. Russia enjoys to-day an external security greater than that of almost any other European power. In case of a general war, Austria, Germany, and Italy might have to fight on two sides of their borders, Russia on but one. Russia cannot be surrounded. For this reason, and, thanks to the vast extent of her territory, she is, so to speak, unconquerable.

Since Russia now enjoys a security greater than that of her neighbors, extreme concentration of power is no longer necessary. It would seem as if the principle of autocracy must lose much of its prestige in the eyes of the cultured classes. And it is so to a certain extent. But in human affairs the *sublata causa, tollitur effectus* is not to be instantaneously applied. After an institution has lost its "raison d'être," it may still, through force of tradition and inertia, retain much of its power.

Such is the present situation in Russia. There are already many persons in the country who appreciate the great advantage of popular representation, and look eagerly for its coming. But it is well to recognize that a large number of Russians still persist, eternally as it were, in political conceptions of a totally different kind. We are not speaking of the state officials, who are afraid of losing their places, should popular control be established. These individuals are out of the discussion. They oppose the establishment of a parliament, not as a matter of principle (for in their inner consciences they recognize its advantages), but from the promptings of a purely selfish interest. The high officials who are in this category are, it is true, very influential, but I am of the opinion that their desires would not prevail, were it not that a large number of individuals among the upper class cling to autocracy on principle, and not from any personal advantages to be derived therefrom.

Every society nourishes within its breast some individuals with antisocial tendencies. It is these persons who *conscientiously* put their own interests above those of their country. But these individuals cannot be continuously the most powerful in the

nation, for if this were so, the forces impelling toward dissolution would preponderate over the forces contributing to cohesion, and society would be dissolved.

We must thus recognize that if the autocratic principle still survives in Russia, it is because a large number of Russians consider it beneficial for their country as a whole.

The sources whence this idea proceeds are many, but they are the result, one and all, of historical circumstances.

The Russian mind has followed the same course of evolution as that of other countries. There may be observed here, to a certain extent, two of the three states of Auguste Comte, the theological phase and the metaphysical phase. This is what has happened. While the other nations of Western Europe had already reached the positive phase, toward the end of the eighteenth century, Russia has not, as yet, even in our day, attained to this. And, again, this does not proceed in any way from an innate quality of the Russian race, but from circumstances purely material and social. Russia is very poor, and its population is widely scattered. For this reason, as well as many others, which I cannot now enumerate, education has spread very slowly. The number of those who are illiterate reaches the scandalous figure of seventy-eight out of a hundred. The higher education is much less widespread than the primary. Briefly, the positive method of reasoning is sufficiently rare in Russia, as yet, and the theological and metaphysical methods reign paramount. A large number of Russians are still imbued with a great deal of mysticism, and, above all, alas, with much intellectual indefiniteness. Their faculty for analysis is very feeble. They have, as yet, but a poor idea of how to class social phenomena, and to give them those clear outlines which are characteristic of the science of positivism. The Russians bring into the State the ideas of the family, and make of them an ideal which is politically hazy and incapable of realization. This ideal may be formulated thus: a sovereign, father of his subjects, governing well in consequence of his affection for them, and, in consequence of a consciousness of his duty as an autocratic ruler, towering above all the rest. The Russian

mystics have a profound contempt for a parliament. They call this a low and vulgar institution, where takes place a series of compromises and bargaining between the different interests at stake. Now this sort of transaction is degrading. A government lowers itself when it condescends to such maneuvers. The Russian mystics affirm that a government, really worthy of the name, should consider the interest of the *mass* of the people. Only an autocrat can accomplish this mission, because he alone has no need to enter into a compromise with any one. Bargaining and the *do ut des* offer no temptation to him. He can accomplish the good of all without sacrificing the interest of one class to that of another.

Naturally, when the mind of the mystic rises to such dizzy heights, he loses all sense of reality. The ultimate result of such vagaries can but be an entire weakening of the society in which they are produced. It is enough, indeed, to place, for one moment, our foot upon the solid rock of positive facts, to witness the immediate disappearance of all such mirages. The sovereign cannot accomplish everything by himself. He must delegate his powers to an immense staff of officials. How is it possible for him to control their actions, so as to be assured that they conform to his benevolent and paternal designs? It is evident that the control of some of the officials by others is absolutely ineffectual. For control of any kind to be effective it must be exercised by disinterested persons, those outside, by individuals, that is, who are not officials. On the other hand, the mystics never take the pains to study accurately natural phenomena. They do not see things as they really are. From the moment when we apply ourselves to the study of nature in a positive spirit, we understand that each little atom in the universe is in a constant dynamic state. It seems to be trying to attract everything to itself. It is just the same with society; each individual is in the dynamic state in regard to his fellow creatures. He endeavors to compass his own best welfare. It is from the union of such efforts, in opposition, some to the others, that social institutions are born. The Russian mystics make a very great mistake

when they imagine that parliamentary compromises are a proof of moral debasement. They are, on the contrary, but checks and counter checks, by means of which a social equilibrium, that is to say, the greatest possible respect for the rights of the individual is maintained.

M. Pobédonostzef, Procurator of the Holy Synod,¹ has recently published a series of articles which have been translated into French under the title of "*Questions religieuses, sociales et politiques.*"² In them he gives expression to the opinion that if all the representatives of the people were saints, the parliamentary régime would be the very best kind of all. But as the representatives of the people are usually of a more than doubtful morality, the parliamentary régime is the worst. Here is an excellent example of the reasoning of the mystic. How is it that M. Pobédonostzef does not see that the argument may be turned directly against absolute monarchy? If all the officials appointed by the sovereign were perfection itself, absolute monarchy would be the best of all forms of government. Is it possible that M. Pobédonostzef would have us believe that it is sufficient for an official to be appointed by an absolute sovereign to ensure his being immediately clothed with all the virtues, and that the Holy Spirit would descend upon him, as it descended formerly upon the apostles? Truly, with ideas like these it would be impossible to create a positive and realistic political system, for if miracles be admitted, the whole scaffolding of the social science falls as does a castle of cards.

Many Russians have minds which are clouded and visionary, and for the reason that monarchy, with its right divine, is more to their liking than the concrete and realistic forms of a parliamentary monarchy.

(1) The Procurator of the Holy Synod (a sort of minister of church worship) is one of the highest dignitaries in the Russian Empire. Furthermore, M. Pobédonostzef possessed great personal influence during the reign of Alexander II., which, in a certain measure, he still retains.

(2) Published at Paris by Baudry in 1897.

Another factor which has contributed toward maintaining the prestige of autocracy in Russia is Panslavism.

From the seventeenth century, but particularly since the reign of Peter I., the sciences, letters, philosophy, and art of Western Europe have made their way into Russia. These same branches of mental activity existed also, it is true, in the ancient Muscovite Empire, but in a rudimentary form, in sad contrast, indeed, to that which emanated from Europe. Russia was as if hypnotized. She lived for more than a century and a half under the complete fascination of the West. It seemed to the Russians that never would they be able, not merely to surpass, but even to equal their models. Naturally, no human being, and no society, can live while constantly sacrificing its personality. In reality, an abdication of this kind must lead, in the long run, either to a species of mental death (in ordinary terms to idiocy) or else the vital forces must react, and come to acknowledge this personality. Now, the Russian people has far too large a share of individuality for the reaction to fail to set in. It occurred in the first half of the nineteenth century under the name of Panslavism. The too great servility of Russian thought to that of the West brought about, by a natural propensity, an excessive reaction of the national pride. The Panslavists maintained that Russia was entirely different from, and superior to, the other nations of Europe. But when it became necessary to come forth from the clouds and to indicate the positive points in which this difference consisted, the Panslavists fell back principally upon these two facts, communal property and autocracy. In certain regions of Russia, the parish lands are, at specified times, divided among the members of the rural community. The Panslavists proceeded to affirm that individual ownership of land, as was the rule in the other countries of Europe, opens the door to pauperism. It divides society into two great classes, clearly differentiated, the non-owners, devoted to incurable poverty, and the owners, who live by taking advantage of the wretched people. The fundamental principle of such an organization is, then, unjust sovereignty. And, because it is unjust,

this organization is imperfect and odious. There is nothing of this kind in Russia, say the Panslavists. In consequence of the communal divisions, every Russian is necessarily a land owner. A proletariat becomes forever impossible. Contrary to that of the West, the fundamental basis of Russian society is justice. As the Panslavists, at first, could discover no distribution of land among the Western nations, they loudly proclaimed that Russia alone possessed this admirable organization, and that, consequently, she was superior to all the others.

It is hardly necessary to state that these arrogant delusions will not for a moment bear the light of criticism. The communal ownership of land is not the exclusive privilege of Russia. It is an archaic and imperfect form of landed proprietorship which has existed everywhere, at less advanced epochs of social evolution. Furthermore, all Russians do not form part of a rural community. There are thus proletarians in Russia. And finally the mere fact of possessing the usufruct of a hectare of poorly cultivated land (and communal land will always be so) will hardly insure the comforts of life to an entire family. And, in truth, in spite of this far-famed communal ownership, the Russian peasant is the poorest and most miserable of all Europe.

But the Panslavists did not perceive all these objections, and proclaimed that communal proprietorship placed the Russian people upon a lofty pedestal of justice and brotherhood.

Beside communal ownership, the Panslavists discovered another superiority belonging to Russia. This was, that the States of Western Europe were all founded upon brute force, while Russia alone was not. The States of the West were established by Germanic warrior chiefs who had taken possession of the Roman provinces. The Franks founded the kingdom of France, the Angles that of England, the Visigoths that of Spain, and so on. But Russia was not a part of the Roman Empire; she never suffered these great invasions. In the ninth century some Swedish adventurers, it is true, had come into Russia. But Rurik and his companions did not come as conquerors. They were invited by the citizens of Novgorod.

Thus, while the States of Western Europe are based upon military conquests, and therefore upon violence and brute force, the Russian State is founded upon the free will of its citizens, therefore upon justice, upon a purely noble and fraternal basis.

It may be understood that a military chief who had forcibly annexed rebellious populations could not govern except through fear, and in his own interest. This warrior chief never troubled himself about the well-being of his subjects. He looked upon them as a flock, to be shorn to the utmost, as a simple *means* of procuring for himself the greatest amount of wealth. Such a political foundation for a State being given, there was no possibility of cordial relations being established between the sovereign and his subjects. The greatest antagonism must reign between the monarch and his people. It is from this very antagonism, according to the Panslavists, that parliamentary governments have arisen. The populations being too much oppressed revolted. They exacted guarantees from their rulers, and these guarantees were what were called constitutional charters.

Quite different was the evolution of Russia, according to the Panslavists. Since the foundation of her common law is not brutal and violent conquest, no antagonism *can* exist between the sovereign and his subjects. The monarchs of Western Europe desired solely their own good and not that of their subjects. But a Russian autocrat who would not care for the good of his people is *inconceivable*, say the Panslavists. A Russian sovereign who should put his own interests above those of his subjects, would be a contradiction which is in itself quite impossible.

It is through this kind of argument that the Panslavists have established, anew, a capital distinction between Russia and the other nations. These other reprobate nations have sovereigns who desire the unhappiness of their subjects, and who consequently cannot love them. Russia, on the contrary, is the righteous nation *par excellence*. Her sovereign wishes only the welfare of his subjects; he loves them, he is their father. To establish the rights of the citizens against the sovereign is of some use when the sovereign wishes evil to his subjects, but to establish them

when he desires their good is useless, and is to little purpose. On the other hand, to prevent the sovereign from compassing the good of his subjects is to desire ill to the nation; it is to create tendencies which are antisocial. Consequently, any attempt having for its object the limiting of the power of the monarch, being antisocial, is criminal and subversive. And, consequently, autocracy is the "Holy Ark" of the Russian nation; it is the institution which differentiates it entirely from the other nations of the West, and which places it anew upon an elevated pedestal of greatness and justice.

Thus reason the Panslavists. It is with this as with the division of communal land; it is hardly necessary to demonstrate that their arguments are not founded upon a knowledge of history and social science. In the first place, Rurik was as wholly a warrior chief as Robert Guiscard. The foundation of the Scandinavian domination in Russia is the same as that of the Norman rule in Neustria or at Naples. The princes of Moscow afterwards acquired the other Russian principalities by fire and sword, exactly as the kings of France acquired their possessions. The foundation of the Russian State is as much, then, violent and brutal conquest as that of the Western States. And, further, the Russian State is composed of a large number of heterogeneous ethnical elements, who have not all even yet received the right of citizenship. If, then, the sovereign of Russia is the father of his subjects, it is well to recognize that his affection is very unequally bestowed upon his children.

Little as the theories of the Panslavists may savor of positivism, they have, in large measure, contributed toward increasing the prestige of the autocratic idea in Russia.

Another fact which contributes to the same result is the democratic tendency of the Russian people.

Russia is a vast plain, nearly destitute of any beautiful material for building purposes. The castle, the seignioral dwelling, erected upon a hill which is visible from a great distance, built from material capable of resisting the wear of centuries, and exhibiting architectural beauties which are the pride of the dis-

trict,—this kind of dwelling, it has not been possible to build in Russia. The castles on the banks of the Rhine, even when in ruins, preserve still a powerful and picturesque individuality, which renders them celebrated for miles around. The name of the Count of Rheinfels, pronounced in former times in the presence of a peasant of Nassau, would produce in his mind the idea of a very powerful noble, because the magnificent Castle of Rheinfels, of which this count was the owner, was known and admired throughout the entire region. In England, the seigniorial dwellings of some of the nobility are among the most remarkable of the architectural monuments of the country, and their owners share in the celebrity of their castles.

It has never been, and is not yet, so in Russia. The homes of the boyars were formerly of wood or brick, and almost always little remarkable in point of architecture. Then, too, the life of the nobility was not conspicuous, and made but small impression upon the people.

On the other hand, the law of primogeniture has never been implanted in Russia.

No matter how illustrious a family, from the single fact that the title passed to all the male descendants, it might be borne by some individuals whose condition of fortune was of the most moderate. The title, for the same reason, lost its prestige.

It must be said, further, that the source of the Russian nobility is not always of the purest. It originates, for the most part, in administrative or military offices. The lowest of the peasants may enter the service of the State; if he attain a certain grade in the administrative hierarchy, he acquires hereditary nobility. But state officials receive but a moderate amount of esteem, admiration, and sympathy; and for a very good reason. This administrative nobility enjoys but a small amount of prestige. Add, further, that the nobles in Russia had for a long time been in the enjoyment of a privilege as useless as it was odious. They alone had the right to own serfs. They abused this right in a revolting manner, and very naturally, therefore, were not much loved or respected by the masses of the people.

Thus the Russian nobility had no traits which brought them out in a certain powerful relief from the other classes of society ; they had neither prestige nor popularity, and for these reasons the Russian people has become democratic, and upon this democratic sentiment the few attempts in the annals of Russian history to limit absolute power have foundered. They proceeded from a small number of dignitaries in high places and a select number of enlightened people. But these chosen ones were not upheld by their immediate associates. The greater part of the governing class have ranged themselves behind the Emperor, and have sustained his unlimited power through fear of an oligarchical government vested in a small group of nobles.

These are the circumstances, which I have so rapidly outlined, that have moulded the autocratic tendencies, and even now uphold them. It may be seen, therefore, that such tendencies are the consequence of historical circumstances, and that they have nothing of the qualities which it is pretended are innate in the Russian "race."

Let us now consider the value of Russia as ζῶον πολιτικόν. We are forced to recognize, in truth, that in this respect her value is but of a moderate kind. Apart from the Emperor Peter I., Russia has produced almost no remarkable political personality. The greater part of her statesmen have been conservatives. Very few among them have been in the least progressive, or have had broad minds, together with that wonderful eagle-eyed penetration which sees clearly the aspirations and needs of the times, which dares even boldly project itself into the future. The larger number of Russian statesmen have been of a timid spirit, filled with narrow prejudices, forever taken up with an archaic ideal which history in its majestic onward march has already thrown aside among the ruins and disregarded possessions of the past. And, further, imitating in this the dull and monotonous plains of their country, Russian statesmen have been of little distinction, and have shown no personality to speak of. And if they have sometimes come out from their framework of mediocrity, it has been, for the most part, alas, through an exaggeration of their tyranny and extravagance.

From another point of view, however, it is not to be denied that the Russians possess some very valuable political qualities. One of these is a strong spirit of subordination, which causes them, the greater part of the time, to put the interests of the State above their own. There is barely an example in Russian history where the governor of a province has rebelled against the central authority of the State, and has endeavored to cut out, to form for himself from the general mass a personal domain. Russia has never offered the sad example of the egotistic and anarchical opinions which so frequently occur in the history of Poland. The spirit of strict discipline with which the governing classes in Russia are imbued has undoubtedly contributed, in great measure, to establish their dominion over so vast an extent of territory.

But to be conquerors is not everything; those that have been conquered must be governed. Now, the Russians have been much less skilful in the latter than in the former task, in consequence of some of their good qualities it may be, but, above all, because of one of their greatest defects. Russia has but a faint conception of law and justice. In this she is the exact opposite of the Roman people. It is this main defect which renders Russian domination so odious and insupportable to the people who must submit to it. A thousand circumstances concur to produce this unfortunate result. I have already said that the Russian is usually open-hearted and very generous. Rapacity, sordid avarice, dull and vindictive cruelty, enter but slightly into his character. He is hospitable, not supercilious, much given to sympathy, and very courteous in his social relations. Because of all this, he coalesces easily with the foreign populations coming under his rule. It is because of these qualities, for example, that the Russians have better understood how to keep their supremacy over their Mussulman subjects in Turkestan than the English over theirs of India. But the Russian character is very uneven. And, further, his political conceptions are, as yet, indefinite, mystical, impregnated with paternalism. If under certain circumstances a conflict of interests arises between

him and the people under his domination, he breaks out in sudden passion, and indulges in measures of extreme brutality. These measures are, then, all the more surprising to the population, because they are so accustomed to indulgence and good nature. Then, when the moment of anger has passed, the Russian unbends, comes to himself again, and without always repealing his unrighteous acts, he allows them quietly to fall into desuetude. A régime of this kind is of all orders the most precarious for those governed, and consequently most intolerable. The populations under Russian subjection, being never able to foresee from what quarter, in the minds of their masters, the wind may blow, live in continual anxiety and constant apprehension. Beside the fact that this is in the highest degree disagreeable for the governed, it is, also, in the highest degree contrary to the true interests of the governors. In fact, with no feeling of security for the morrow, no one dare undertake those business enterprises of a more extended character which are the base of the material prosperity of a country.

The Russian State has been established by violence, by strokes of individual authority. Thence proceeds the illusion that the renewal of these brutal attempts is the Alpha and Omega of political wisdom. Very many Russians, even among the most cultured classes, have an idea that it would be impossible to ensure general prosperity unless governments were to take, at certain times, measures described in Russia as *administrative*, that is to say, measures which are illegal. This idea, which is securely anchored in the Russian mind, shows how refractory it still is as to any perception of true justice, and to what extent the Russian is still, after all his efforts at civilization, a "political animal," and of a very ordinary quality.¹

VI. PRESENT STATE.

After having glanced rapidly over the more or less permanent traits of the Russian nation, I should like, before finishing this

(1) What is now taking place in Finland perfectly sustains my opinion.

hasty sketch, to add a few words upon the situation of the moment.

First of all, with reference to economics, Russia is in a fair way to accomplish an important transformation. She is passing from the purely agricultural stage into the industrial. England is the country in which this phase has attained its highest development. Out of one hundred Englishmen seventy-one live in cities and twenty-nine in the country. In Russia the proportion is more than the reverse of this: fifteen persons live in cities and eighty-five in the country districts. But in consequence of the strides which manufacturing has made, the population of the cities continues to increase. A working class is beginning to be formed. The "bourgeoisie" is growing. These movements are already plainly visible, but they are being brought about slowly. In consequence of a thousand impediments produced by bureaucratic centralization, everything in Russia advances at a snail's pace. Things have been set going, however, and, as Russia possesses vast mineral wealth (still very largely unexplored), manufactures cannot fail, sooner or later, to rise to great importance.

Another important event in Russian history is the establishment of a network of railways, which from this time forward are destined to extend over the entire country. Doubtless the Russian network is still modest, indeed, compared to that of America,¹ but such as it is, it has already produced a fairly immeasurable revolution. Russia was formerly an amorphous country. Some of her regions were practically inaccessible, because of their immense distance from the sea. On the other hand, during a certain number of weeks in the Spring and Autumn, communication ceased almost entirely. All this is a thing of the past, thanks to the railroads. These transport men and goods at one and the same time. Through this means a

(1) There were in Russia, July 1, 1900, fifty-four thousand six hundred kilometres of railroads, and in the United States, January 1, 1899, three hundred thousand, six hundred and thirty-six kilometres.

constant and continually flowing current of ideas is established between the different parts of Russia, and has reunited them as with an organic bond.

In spite of the frightful obstacles which overwhelm them, the press and publishing trade are making great progress in Russia. Russian editions do not yield much in point of elegance to those of Western Europe. Here is another sign of the times: very expensive publications have begun to have a financial value in Russia. A Leipzig house, combined with another in St. Petersburg, is now publishing an immense encyclopædia, after the model of the "Encyclopædia Britannica." More than a million dollars have been invested in this enterprise, which, however, is very profitable. Twenty or thirty years ago, no such thing as this would have been possible. I cannot enlarge upon these matters which are not exactly in line with my subject. I mention them only to show that economic power (which is the foundation of the development of the mind) is increasing in Russia, even though slowly.

What is the present tendency of the Russian mind? In order to answer this question we must go back a few years.

The shameful defeats suffered in the Crimea, in 1854 and 1855, had shown, with the most absolute clearness, how fatal had been the ultra conservative policy of the Emperor Nicholas I. A powerful liberal reaction set in under Alexander II. A series of beneficent reforms was the result: the suppression of serfdom, in 1861; the reformation of the courts of justice and the introduction of the jury system, in 1864; provincial self-government for the provinces, in 1865, and the suppression of preliminary censure at St. Petersburg and Moscow in the same year.

These reforms created a new spirit. Toward 1872, the Russian youth were at the boiling point. They desired to enter upon a sort of crusade to free the peasants from their ignorance. Youthful apostles went abroad over the country, preaching among the workmen in the towns theories that were liberal and more or less subversive. If the Russian government had been endowed, at that time, with even a partially clear sense of justice,

it would have understood that to preach what seems to him the truth is the primordial right of every human creature. On the other hand, if the Russian government had possessed the most elementary principles of sociology, it would have seen at once that the Nihilist apostleship had no sort of chance of amounting to anything serious. Indeed, to modify the political ideas of seventy millions of illiterate men would require an enormous amount of money and immense efforts, protracted for generations. What could be accomplished by some thousands, or rather by some hundreds, of young Nihilists, spread about through the country districts of Russia? Their propaganda would quickly disappear in the vast ocean of ignorance around them, without leaving further trace than would a small brook in the Atlantic. The government had only to shut its eyes. The youthful enthusiasts would have been freed from their social illusions; and in a very little while they would have abandoned their premature attempts. This is just what did happen in many cases. Many young preachers became very quickly disgusted, and gave up their apostleship among the peasants, seeing that it could lead to nothing.

Unhappily, the Russian government had no sufficient amount of liberalism, nor of foresight. The reactionists who surrounded the noble and generous Sovereign, the great-hearted Alexander II., began to frighten him, and advised measures of merciless severity against the Nihilists. The young persons who were preaching in the country districts were arrested, put in prison, subjected to the most rigorous treatment, and, in consequence of sentences rendered behind closed doors by special tribunals that offered no guarantee of impartiality and equity, were transported to Siberia. In the face of such persecutions as these the Nihilists resisted. They transformed themselves into a secret society and opposed to the severities of the government, assassinations and outrages even more daring. Holding the Emperor Alexander II. responsible for the policy urged upon him by his advisers, they became enraged against him personally, and made repeated attempts to kill him.

In the meanwhile, the Turkish war broke out. The Russian army suffered great privations. Nevertheless, in time, they triumphed, and arrived under the walls of Constantinople. In February, 1878, Russia was breathlessly awaiting the accomplishment of her destiny and the crowning of her historical mission. For an immense majority of the Russians the war of 1877 had all the effect of a new crusade. A glorious hope had taken supreme possession of their hearts. Every moment the capture of Constantinople was looked for and the end of the Mussulman power on our continent. It would seem as if the inauspicious work, accomplished in 1453 by Mahomet the Conqueror, were about to be undone by the hand of Holy Russia. It seemed as if Europe were about to enter into possession of that eastern basin of the Mediterranean which had formerly been her most splendid domain.

Alas, how cruelly deceived were the Russian people, in maintaining these glorious expectations! Constantinople was not occupied, the Mussulmans were not driven out of Europe, and even the independence of Bulgaria was effected in but a limited and narrow way.

Discontent followed these misconceptions. The plots of the Nihilists were renewed, and aroused further exasperation on every side. The more nervous and severe the government appeared, the more did the terrorist party redouble its audacity.

Alexander II. was a monarch who was too enlightened, whose heart was too tender, not to feel that the mere civil administration is not everything in the life of a great nation. Toward the beginning of the year 1881, Russia was living in a state of extraordinary tension. Each day a change in the régime was expected. A constitution was the universal theme; and it was even said that one had been already drawn up, and that it would be promulgated before long.

Unhappily the plots of the terrorists did not blow over. The narrow minded and stupid fanatics who led the movement appeared to be utterly blinded. They neither saw nor heard anything of what was passing around them, and pursued their vengeance against such a Sovereign as Alexander II. As ill fortune

would have it, the odious crime of the 13th of March, 1881, was successful.

This great crime was naturally succeeded by a furious political reaction, which lasted without interruption throughout the reign of Alexander III., and bore the acknowledged seal of a narrow Muscovite nationalism and of an orthodox clericalism even more narrow still. The institutions of Alexander II. were nearly all revised in the direction of reaction. Self-government in the towns and provinces was limited, the independence of the jury perceptibly restricted. The unfortunate Israelites were deprived of most of their privileges; they were excluded from the municipal councils of the cities; their admittance into the middle and primary schools, and to the committees, was restricted. They were driven out *en masse* from certain parts of the Empire, in which, thanks to the toleration which reigned under Alexander II., they had been able to establish themselves. The severities of the censorship were redoubled. Many of the most influential journals were suppressed. Military law was established in the large Russian towns which gave privileges to the provincial governors and the prefects of customs which were often abused.

While, about 1873, the apostle who went about the country carrying good news to the people was the most striking character in Russian life, under Alexander III., it was the "careerist" who became the characteristic type. This type, which, in France, Alphonse Daudet has named the "Struggle for Life," was represented by the young official, with no kind of moral aspiration, with no sort of ideal, seeking to obtain, by every imaginable means, the greatest possible number of material advantages. Men of this type multiplied as rapidly as weeds. A leaden gloom fell upon Russian society. People lived, from day to day, in a sad, monotonous fashion, without having even a glimpse of anything better.

Revolutionary plots grew less frequent, little by little, and finally ceased entirely, at least as far as the public knowledge extended. In any case, there were no more astounding political

assassinations. This was one of the singularly happy features of the reign of Alexander III. Let us hope that the progressive party in Russia has already perceived how odious and foolish and disadvantageous it is to resort to brute force.

Alexander III. being now dead, the hopes of the liberals strongly revived. They thought that the reactionary party would, on the accession of Nicholas II., be broken up, as had happened after the death of Nicholas I. Nothing of the kind occurred. The men who had surrounded Alexander III. remained in power during the reign of his son, and the greater part of them are in power now. The course of political opinion did not change. Some reactionary measures were still taken. Nationalism in a narrow sense continued to flourish. None of the exceptional measures which had been enacted against the unhappy Israelites were repealed. Thus, apparently, everything is going on since the death of Alexander III., just as it did during his life. But, however, it is not quite that! We are conscious, in spite of everything, that the force of the reaction is blunted. It is not as yet receding; but it is, however, no longer advancing.

Russia is at the turning point. Russian thought has become a stagnant pool. The liberals have not to a marked degree the courage of their convictions, nor do the reactionaries dare engage in any too great violence. We live from day to day, and no one knows whither one is tending. It seems even as if people were delighted not to go anywhere. Some legislative measures of very slight importance have been enacted. But no one seems to have the courage to attack the great political problems, ripe for so many years. Life formulates its imperious demands, but the government, in its inability to act, seems to wish to stop up its ears and close its eyes. Russia continues to linger along in superannuated and nearly vanished institutions, hardly worthy of the eighteenth century, and continues to be an archaic state. The breath of no powerful and generous idea seems to animate this country. Not a single man, no great character, no conspicuous personality, appears to captivate the crowd and to vibrate in the hearts. The novel is reduced to a

superficial impressionism, which paints daily life exactly as it is, without in the least attempting to interpret it. It would seem as if the novelists are chiefly ambitious to reduce themselves to the level of photographic machines, and to carefully avoid all traces of an independent thought.

At this present moment, Russian society seems to be without aspiration, and with no ideal of any kind. There is not a single great question about which intellectual war is waged. The most sacred principles count but sceptics and unbelievers. It would seem as if the chosen few of Russian society (among whom, in other times, such powerful currents of thought have been produced) had lost the faculty of feeling the beating of their own heart. An atmosphere, dull and grey, pervades the whole. There is absolute stagnation.

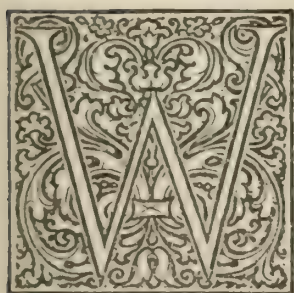
For how long will this state of things last? Ten, twenty, thirty years? Who will be the deliverer? who will come to drag Russian society from its dull and lifeless state? Alas, no one can answer this question.

One event alone has been as a ray of light on this dark and gloomy sky,—the circular of the 24th of August, 1898, and the conference at The Hague, which was the result of it. Unhappily, neither has this event succeeded in rousing Russian society from its torpor. Many people in Russia expressed themselves on the subject of The Hague conference with a pessimism both scornful and ironical. Furthermore, the noble attempt of the Emperor Nicholas II. has hardly passed out of the domain of theory. Russia has not disarmed a single regiment; quite the contrary. This year the number of recruits called to active service is greater than last. And Russia has also experienced a recrudescence in naval affairs, a more foolish madness even than militarism. The construction of ironclads has been resumed with great ardor.

Russia is at present going through one of the dullest and most spiritless periods of her history. The Russian people have, I am sure, too much exuberance of vital power not to react eventually. Some day the nation will resume its forward march. Of that there can be no shadow of doubt. But just now, Russia seems as if motionless, hesitating and irresolute between progress and reaction.

WEST POINT

COL. C. W. LARNED, *United States Military Academy.*



WAR as an art has not escaped the regulating force of modern industrial specialization. Starting as an instinct and the natural business of the entire body of adult males, it has steadily shrunk in its scope until it has become, with the advance of civilization, a distinct profession and a special science. This is no less a fact even where, as in the continental system, an entire nation is under military tuition; for the tendency of modern conditions is to specialize the science of arms more and more, and to reduce its principles to exact terms exactly in proportion to the growth of industrial expansion and scientific discovery. Not only has the mechanical engineering of war become more complex, and the problems of supply and mobilization more intricate in detail and precise in execution; but the private soldier has to be taught more things, and is required to know them better than ever before. It is a painful thought, but it is unhappily a fact, that the only entirely consistent and approximately perfect organization in the social system is that of human destruction as exemplified in the military hierarchy of Germany. As a working mechanism of human agencies it has no equal.

So long as the forces which operate to bring political and industrial differences to the issue of arms continue to exist, it is

entirely beside the mark to declaim against war and to decry the professional soldier ; and there are few forms of cant more depressing than the pious horror of commercial cutthroats for the brutal instincts of the military class in view of the patent fact that commercial greed is the vital principle of modern military armament. Industrial war does not differ in aggressive principles from the war of arms, and often its immediate results are not less cruel and disastrous, while its purposes are certainly more sordid and merciless ; and when, as in our day, the two are associated as master and tool such epithets, so long as chestnuts are hot, come with a bad grace from the monkey to the cat. War will cease to exist only with the conversion of the soul of the commercial and political man to the standard of the ethics of the millenium ; and, in the meanwhile, the more professional it is made and the more thoroughly its science is mastered, the more will its horrors be mitigated and its duration lessened.

That war is a science of details which must be mastered in advance is the lesson that Prussia has twice taught the modern world ; and Washington, at the beginning of our national career, saw this clearly even under the less complex conditions of that day. In his last annual message to Congress he remarks, "A thorough examination of the subject will evince that the art of war is both comprehensive and complicated ; that it demands much previous study ; and that the possession of it in its most improved and perfect state, is always of great moment to the security of a nation."

From these considerations spring the *raison d'être* of the military school ; and it is well to bear in mind that whatever be the policy of this nation as to the size or character of its military establishment, the necessity for the school is paramount. Indeed, the necessity for the school grows greater in proportion as the size of the standing army diminishes ; and an ideal condition, perhaps, for a republic would be a minimum armed force, and a maximum of thorough military instruction in high grade military schools ; a large supply of accomplished officers distributed throughout the land ready at call to organize and lead the volunteer levies of the

nation. At all times of military emergency the great embarrassment has been and will continue to be the lack of trained officers for the handling of these levies. There never was and probably will never be a lack of men. There are, of course, a considerable number of civilians who feel abundantly competent to wear the straps and draw the pay of command from major to major-general; and, equally of course, there always will be abundant lawmakers in times of emergency and excitement ready and willing to afford them the opportunity; and, for this debauch of "pull," the country must always pay the price in early disaster and blunder; but this is a condition inherent in our institutions, and the bitter lessons taught by each war's experience are speedily forgotten and whistled down the wind. There seems to be, also, a widespread, latent resentment, on the part of the potential commander in civil life, of the implied doubt regarding his military capacity conveyed by the existence of a military academy and its severe exactions, which does not fail to manifest itself in bitter and gleeful vituperation of that institution upon opportunity. The West Pointer with his exasperating knowledge of his business, his austere views of *meum* and *teum* and the virtue of exact statement, has been a thorn in the side of many a fervid volunteer with a misfit eagle or star. The graduate lieutenant or captain, and his non-graduate brother regular who are thus ranked, besides the four fiery years of the former at the Academy, mayhap have been humbly serving their trade in storm and stress for thirty years waiting for the opportunity to show their worth. If, when the time comes, the first opportunity goes to the politician, the tradesman, or the youth with pull, the graduate patiently takes his place on his superior's staff, shows him how, and waits for time to justify him if he lives. How magnificent was the justification of the great war of the century, the record of its history shows. It is to be doubted if any educational institution was ever so superbly vindicated by trial as the National Academy at West Point, or has more clearly demonstrated the fitness of its purposes and methods to accomplish proposed ends; and it stands to-day foremost among the military schools of the world, of acknowledged

preëminence and with a record of integrity and high command unequalled by any.

It is natural to a strong and self-reliant republic, which has developed aloof from the glitter and clash of modern militarism, to set small store on military matters, and to underrate the discipline of military preparation. America has had too much to do on the farm and in the shop to spend much time soldiering. From 1812 to 1898 it had but one foreign war and that a little and very one-sided one. 1861 brought a sharp and stern awakening to the meaning of war on a large scale, but when the great volunteer armies went back to the farms and shops, after the family quarrel was settled, no one had any more taste for soldiering than before, and, as there was nothing to fear from outside, the military lessons of the war, whatever they were, were speedily ignored or forgotten. One of these lessons was West Point: that institution whose record in the struggle was preëminent; of whose sons on both sides, over three hundred and fifty, wore the stars of general rank, and held all of the chief commands; West Point, which had organized victory in the scientific and supply corps, and which at Appomattox held on the one side the sword of the victor and on the other the pen of honorable capitulation. Within a dozen years thereafter, the press of the land rung with fierce denunciations of this hotbed of aristocrats and ruffians, and the halls of Congress echoed threats of its destruction. Another score of years witnesses a second vituperative cyclone upon its devoted head, a second volcanic shower of epithets in the press of the land and from individual sources, accompanied by almost universal oblivion of the part played by the Academy in the nation's history and of the material it has contributed to the nation's life. And yet, notwithstanding these hysteric gusts, there exists, among the large body of those who know and reflect, a strong consciousness of the worth to these United States of America of the spirit of patriotism, duty, and integrity developed in the small body of its servants who are nursed to their professional maturity by the Alma Mater of the Hudson Highlands.

ITS CIVIL RECORD.

On the 16th of March, 1902, the United States Military Academy at West Point will have completed the first century of its existence. If the present second class should not lose any of its members, the total number of graduates from the institution will be 4,135. Including the appropriation for the fiscal year ending June 30, 1902, provided by the bill pending at this writing, the total appropriations for the support of the Academy since its foundation aggregate \$22,189,535.94 (about the cost for one year of the regular army before enlargement) or an average of \$221,895.35 per year, and of \$5,366.25 per graduate. During this period its sons have served in one civil, and four foreign wars, and an almost uninterrupted Indian conflict; and in civil life they have held almost every office of honor and trust in the gift of their fellow countrymen from president of the United States and of the Confederate States, presidents of universities, railroads, and banks to mayors and legislators, principals of schools and heads of minor corporations. They have been bishops and judges, distinguished clergymen, artists and lawyers, successful physicians, noted scientists, and civil engineers. In foreign lands they have been ambassadors, ministers plenipotentiary, consuls general, and special envoys.

Of its military record I shall have occasion to speak presently. I desire for a moment to dwell upon some features of its relations and contribution to the civil and productive life of the nation. It will, perhaps, be of interest to compare the two following tables showing, on the one hand, the sources of its personnel and, on the other, the versatility of resource and adaptability to varied conditions of its graduates:—

Summary, showing occupations, and number engaged in each, of parents of candidates for admission to the Military Academy, 1842 to 1891, and of parents of cadets admitted to the Academy, from 1892 to 1899, inclusive:—

Accountants, 3; agents, 62; architects, 5; artists, 4; auctioneer, 1; auditor, 1; author, 1.

Baggagemaster, 1; bakers, 4; bankers and bank officers, 90; barbers, 4; bookkeepers, 18; brewers, 3; brokers, 40; builders, 2; butchers, 2.

Capitalist, 1; chief of police, 1; city marshal, 1; clergymen, 128; clerks, 90; clerk of House of Representatives, 1; collectors, 4; commercial travellers, 13; cutlery commissioner, 1; conductors, 2; contractors, 38; cook, 1; cotton buyer, 1; county officers, 74.

Dairymen, 2; detectives, 2; dentists, 14; distiller, 1; dock master, 1; dock commissioner, 1; draughtsman, 1; druggists, 13.

Editors, 62; electroplater, 1; engineers, 36; engineers, civil, 13; engineers, mechanical, 10; engineers, locomotive, 3; engineer, stationery, 1; enlisted men, 4; express business, 2.

Farmers and planters, 1,149; fishing master, 1; foreman, 1.

Gardeners, 3; general business, 5.

Hatter, 1; heads of corporations, 10; hotel keepers, 55.

Ice, 1; importer, 1; inspectors of police, 2; inspectors of factories, 2; inspector of buildings, 1; insurance business, 38; inventor, 1.

Jewelers, 3; journalists, 8; justice of the peace, 1.

Laborers, 29; lawyers and judges, 645; letter carrier, 1; librarians, 2; lithographer, 1; liverymen, 15; lumbermen, 20.

Manager of engines and boilers, 1; manager of brewery, 1; manager of land company, 1; manager of factory, 1; manufacturers, 151; marble dealer, 1; mechanics, 341; member of city board, 1; members of Congress, 32; member of state legislature, 1; merchants, 722; merchant tailor, 1; messenger, 1; millers, 11; mining, 26; museum keeper, 1; musicians, 2; musician, band leader, 1.

Newspaper correspondent, 1; newspaper manager, 1; no occupation, 191; nurserymen, 6.

Officers of the army, 362; officers of the navy, 59; officers of volunteers, 21; oil business, 2; overseers, 2.

Photographers, 6; physicians, 367; pilot, 1; policemen, 7; police justices, 2; politicians, 3; postmasters, 5; presidents of colleges, 4; presidents of insurance companies, 3; president of steam heating company, 1; president of manufacturing company, 1; president of wire mill, 1; printers, 12; professors, 27; proprietor of elevator company, 1; publishers, 8.

Railroad employees, 6; railroad officers, 13; ranchmen, 2; real estate, 37; restaurant keeper, 1.

Salesmen, 5; saloon-keeper, 1; school-teachers, 56; secretaries, 14; ship-captains, 25; speculators, 10; state officers, 27; steamboating, 1;

steward, 1; stock dealers (cattle), 10; stocks, 1; stock raisers, 6; superintendent of factory, 1; superintendent of coal and iron company, 1; superintendents of gas works, 2; superintendent of mine, 1; superintendent of prisons, 1; superintendent of railroad, 1; superintendents of schools, 4; superintendent of iron work, 1; surveyors, 5.

Tanners, 2; teamster, 1; theatre manager, 1; teacher of music, 1; teacher of garment cutting, 1.

Undertakers, 5; unknown, 39; United States civil officers, 85.

Wagon-master, 1; warden of prison, 1.

TABLE SHOWING CIVIL OCCUPATIONS OF GRADUATES OF THE MILITARY ACADEMY PREVIOUS TO 1891.

CULLUM'S REGISTER.		Presidents of Universities, Colleges, etc.	
President of the United States . . .	1	Principals of Academies and Schools	32
President of the Confederate States	1	Regents and Chancellors of Educa-	
Members of Cabinet of President of		tional Institutions	13
United States	4	Professors and Teachers	131
Ministers from United States to		Superintendent of Coast Survey .	1
Foreign Courts	11	Surveyors-General	10
Charges d'Affaires	2	Chief Engineers of States	14
Consuls General and Consuls . . .	9	Presidents of Railroads and Cor-	
Members of the United States Sen-		porations	77
ate and House	21	Chief Engineers of Railroads and	
United States Civil Officers, Vari-		Public Works	61
ous	170	Superintendents of Railroads and	
Presidential Electors	8	Public Works	59
Governors of States and Territories	14	Treasurers and Receivers of Rail-	
Lieutenant-Governors of States and		roads and Corporations	21
Territories	2	Civil Engineers	217
Members of State Legislatures . .	77	Judges	13
Presiding Officers, State Legisla-		Lawyers	185
tures	8	Bishop	1
Members of Conventions to form		Clergymen	20
State Constitutions	13	Physicians	12
State Officers, Various	76	Artists	3
Adjutants, Inspectors, Quartermas-		Farmers and Planters	228
ter-Generals, Chief Engineers of		Bankers	17
States and Territories	24	Bank Presidents	8
Officers of State Militia	145	Bank Officers	21
Mayors of Cities	15	Editors	26
City Officers	48	Authors	158
Merchants	121		

It will be seen at a glance that no institution in the land, not excepting Congress, is at once so representative of every condition and locality, so purely democratic. It will also be observed that no institution, however liberal, can show a more plastic conformity to varied conditions and requirements than is shown by this list of distinguished successes in every walk of civil life. It is a mathematical refutation of the assertion that a military education unfits for civil functions and occupations. Since the compilation of this list in 1890, nearly every one of the higher offices excepting that of the chief executive has had added occupants from graduates; ambassadors, ministers, judges, members of national and state legislature, chancellors of universities, etc., etc. The proved integrity and discipline of mind and habit engendered at West Point make their mark and bring their price wherever applied.

No better illustration of the value of these qualities in positions of trust and professional responsibility can be found than in the work of the Engineer Corps of the U. S. Army. This corps is wholly composed of graduates of the Military Academy, and its control has been in their hands from the beginning. Indeed, by the law of their creation the Engineer Corps and the Military Academy were identical. "And be it further enacted, that the said Corps (Engineers) when so organized, shall be stationed at West Point, in the State of New York, and shall constitute a military academy." (Act of March 16, 1802.)

Since that date the work of this corps has been more and more of a civil nature, embracing the control of the great river and harbor improvements, boundary surveys, construction of great public buildings, including the National Capitol, Public Library, Washington Monument, and many more undertakings of a purely civil character. During this long period of nearly a century, the public moneys disbursed in civil operations by this small body of officers has aggregated the enormous sum of \$405,898,159.30,

without the loss to the government of a single dollar, and with but one accusation against an officer. To this record of civil work must also be added the very large disbursements for military purposes increasing the aggregate very greatly—certainly to not less than \$500,000,000.00.

ITS MILITARY RECORD.

Let us turn to the story of its work in the line of its essential function as a military academy, and inquire how it has justified the purposes of its foundation and the expenditures for its maintenance as a school of war. In this regard its tests have been equally varied and exacting. How has it met them?

The War of 1812 with Great Britain found the Academy feeble and struggling for existence against adverse influences. There were at that time but sixty-four graduates, educated under primitive conditions, and all of junior rank. Our few regulars had little or no experience under fire. Of the young graduates serving in the field one sixth were killed in action, one fourth were killed or wounded, and one fifth of the survivors received one or more distinguished brevets.

At the outbreak of the Mexican War there were over five hundred graduates in the service. The small regular army was mostly officered by them, and the volunteer regiment and battalions were generally under their command, although the highest commands were in the hands of their seniors, the veterans of pre-academic armies. The armies in Mexico won thirty victories against immense odds, took a thousand cannon and huge quantities of small arms and munitions, captured ten fortified places and a vast country. Of this General Scott, a non-graduate, the commanding general, said, "I give it as my fixed opinion that, but for our graduated cadets, the war between the United States and Mexico might, and probably would, have lasted some four or five years, with, in its first half, more defeats than victories falling to our share; whereas, in less than two campaigns, we con-

quered a great country and a peace, without the loss of a single battle or skirmish."

During this period, and up to recent times, the regular army, officered until 1861 almost wholly and since then largely by graduates, has fought a pioneer war against the fierce nomads of the land. In over three hundred fights they have won the progressive boundary of civilization and held it for their brothers of the plow, braving hardship and death in all seasons. Living the best years of their lives in remote frontier posts with rare glimpses of the refinements of civilization; having little reward in sight but a sense of duty done; growing gray in junior grades under the slow promotion of peace conditions; kept poor by the necessities of frequent changes of station, these exiles in their own land were the guardians of a territory, which they did not possess, and the promoters of a great industrial development, whose fruit was not theirs.

When the great war of the states burst upon the land it found the Academy as now, recruited from the four quarters of the Union, and its cadets representing the convictions and traditions of their homes. The political doctrines of the native state, its traditions and prejudices, were by nature those of the young man. Feeling and contention here ran high and fierce as everywhere else. Even the North was divided against itself. Notwithstanding this, it is a remarkable fact that of the officers of the army appointed from civil life one half went with the Confederacy, while only one fifth of the West Pointers went South; and of those from the southern states themselves, one half remained loyal. One hundred and sixty-two southern graduates withstood the terrible strain of kin and birth and stood by the flag, while from every other institution and position,—the supreme bench, the cabinet, Congress, the agents of the state, and institutions of learning,—the southerners flocked *en masse* to their native states. So much for the question of fidelity at a time when all convictions were in good faith and fierce intensity at variance. Now for the military aspects of the results. A brief statement will sum up the evidence of the tables subjoined.

At the end of a titanic struggle between an aggregate of about three millions of combatants, all the armies in the field on both sides were commanded by graduates, nearly all the corps, a large majority of the divisions, the staff corps of organization, supply, and science of both forces and many of the brigades. Every important battle of the war was commanded on one or both sides by a graduate—generally both. Out of sixty, on the list given below containing all the most important battles and campaign series, all but five were commanded on both sides by graduates. This was the verdict of the end of the conflict after every expedient and personality had been put to the test:—

The total number of graduates of the Academy to date who have attained full rank of general officers in the service of the United States is 268.

The total number to attain this rank in the Confederate service so far as can be ascertained is 147.

During the Civil War, the total number of graduates who attained full rank of general officers in the armies of the United States, is 208 distributed as follows:—

ARMY COMMANDERS—25.

Grant, Sherman, Sheridan, McClellan, Halleck, Meade, Thomas, Schofield, Rosecrans, Hooker, Buell, McPherson, Canby, Ord, Howard, Hancock, Slocum, Merritt, Lyon, and others.

CORPS COMMANDERS—39.

Sedgwick, Franklin, Sykes, Warren, Couch, Gordon Granger, "Baldy" Smith, Stanley, McCook, Augur, Crook, Griffin, Wright, Gibbon, Doubleday, Parke, and others.

DIVISION AND DEPARTMENT COMMANDERS—76.

Smith, C. F., Buford, Gregg, McCall, Ricketts, Hamilton, Kilpatrick, Custer, Sherman, T. W., Averill, Getty, King,

Ayers, Greene, G. S., Webb, Cooke, P. StG., Wilcox, Anderson, R., Ruger, Kautz, Ames, Upton, Mackenzie, and others.

Chiefs of Artillery and Brigade and District Commanders—59, including Barry and Hunt, the great Artillery Chiefs.

Heads of Staff Departments—9, including Meigs, Quartermaster-General; Lorenzo Thomas, Adjutant-General; Totten, Chief of Engineers; Ripley, Chief of Ordnance; Eaton, Commissary-General.

During the Civil War the graduates attaining full rank of general officer in the Confederate service were distributed as follows :—

GENERALS—8.

R. E. Lee, J. E. Johnston, A. S. Johnston, Beauregard, Bragg, Hood, E. Kirby Smith, and Cooper.

LIEUTENANT-GENERALS—15.

Jackson, Longstreet, A. P. Hill, D. H. Hill, Polk, Ewell, Early, R. H. Anderson, Pemberton, Buckner, Wheeler, S. D. Lee, Hardee, A. P. Stewart, and Holmes.

MAJOR-GENERALS—40.

J. E. B. Stuart, Fitz Hugh Lee, Trimble, Donelson, Hugher, Magruder, Crittenden, Withers, Elzey, Walker, E. E. Johnson, Stevenson, Gilmer, McCowan, B. R. Johnson, S. Jones, M. L. Smith, G. W. Smith, Lovell, McLaws, Van Dorn, French, Gardner, Whiting, Maury, B. R. Jones, Wilcox, Maxey, Pickett, Heth, Field, Ransom, Forney, Bowen, G. W. C. Lee, Pegram, Pender, Lomax, Marmaduke, and Ramseur.

BRIGADIER GENERALS—84.

J. H. Winder, Rains, Garnett, and others.

IMPORTANT BATTLES OF THE CIVIL WAR WITH NAMES OF COMMANDERS AND FORCES ENGAGED ON BOTH SIDES.

BATTLE.		UNION COMMANDER.	FORCE.	CONFED. COMMANDER.	FORCE.
	1861.				
Bull Run	July 21	Irvin McDowell*	28,452	{ J. E. Johnston*	32,232
Wilson's Creek . . .	August 10	Nathaniel Lyon*	5,400	{ P. T. Beauregard*	11,600
	1862.			McCulloch	
Fort Donelson . . .	Feb. 12-16	U. S. Grant*	27,000	Floyd	21,000
Pea Ridge	March 7	S. R. Curtis*	11,250	Earl Von Dorn*	14,000
Shiloh	April 6, 7	U. S. Grant*	62,682	A.S. Johnston* Beauregard*	40,335
Williamsburg . . .	May 4, 5	Geo. B. McClellan*	40,768	J. E. Johnston*	31,823
Fair Oaks	May 31-June 1	Geo. B. McClellan*	41,797	J. E. Johnston*	41,816
Mechanicsville . . .	June 26	Geo. B. McClellan*	15,631	Robert E. Lee*	16,356
Gaines's Mill	June 27	Geo. B. McClellan*	34,214	Robert E. Lee*	57,018
Peach Or. Mal. Hill	June 29-July 1	Geo. B. McClellan*	83,345	Robert E. Lee*	86,748
Seven Days' Battles .	June 25-July 1	Geo. B. McClellan*	91,169	Robert E. Lee*	95,481
Cedar Mountain . . .	August 9	John Pope*	8,030	"Stonewall" Jackson*	16,868
Manassas & Chantilly	Aug. 27-Sept. 2	John Pope*	75,696	Robert E. Lee*	48,527
South Mountain . . .	September 14	Geo. B. McClellan*	28,480	Robert E. Lee*	18,714
Antietam	Sept. 16, 17	Geo. B. McClellan*	75,316	Robert E. Lee*	51,844
Corinth	Oct. 3, 4	W. S. Rosecrans*	21,147	Earl Von Dorn*	22,000
Perryville	October 8	Don C. Buell*	36,940	Braxton Bragg*	16,000
Fredericksburg . . .	December 13	A. E. Burnside*	100,007	Robert E. Lee*	72,497
Chickasaw Bayou . .	Dec. 27-29	W. T. Sherman*	30,720	John C. Pemberton*	13,792
Stone's River	December 31	W. S. Rosecrans*	41,400	Braxton Bragg*	34,732
	1863				
Chancellorsville . . .	May 1-4	Joseph Hooker*	97,382	Robert E. Lee*	57,352
Champion Hill	May 16	U. S. Grant*	29,373	J. C. Pemberton*	20,000
Vicksburg	May 22	U. S. Grant*	45,556	J. C. Pemberton*	22,301
Port Hudson	May 27	Nathaniel Banks	13,000	Franklin Gardner*	4,192
Port Hudson	June 14	Nathaniel Banks	6,000	Franklin Gardner*	3,487
Gettysburg	July 1-3	Geo. Gordon Meade*	83,289	Robert E. Lee*	75,054
Fort Wagner	July 18	Quincy A. Gillmore*	5,264	P. T. Beauregard*	1,785
Chickamauga	Sept. 19, 20	W. S. Rosecrans*	58,222	Braxton Bragg*	66,326
Chattanooga	Nov. 23-25	U. S. Grant*	56,359	Braxton Bragg*	46,165
Mine Run	Nov. 27-Dec. 1	Geo. G. Meade*	69,643	R. E. Lee*	44,426
	1864.				
Wild. & Spottsylvania	May 5-12	U. S. Grant*	88,892	R. E. Lee*	61,025
Wilderness	May 5-7	U. S. Grant*	101,895	R. E. Lee*	61,025
Spottsylvania	May 10	U. S. Grant*	37,822	R. E. Lee*	unk'wn
Spottsylvania	May 12	U. S. Grant*	65,785	R. E. Lee*	unk'wn
Drewry's Bluff	May 12-16	B. F. Butler	15,800	P. T. Beauregard*	18,025
Atlanta Campaign . .	May	W. T. Sherman*	110,123	J. E. Johnston*	66,089
Cold Harbor	June 1-3	U. S. Grant*	107,997	R. E. Lee*	unk'wn
Petersburg	June 15-18	U. S. Grant*	63,797	R. E. Lee*	41,499
The Mine	July 30	U. S. Grant*	20,708	R. E. Lee*	11,466
Deep Bottom	Aug. 14-19	U. S. Grant*	27,974	R. E. Lee*	20,008
Weldon R. R.	Aug. 18-21	U. S. Grant*	20,289	R. E. Lee*	14,787
Kenesaw Mountain . .	June 27	W. T. Sherman*	16,225	J. E. Johnston*	17,733
Tupelo	July 13-15	A. T. Smith*	14,000	S. D. Lee*	6,600
Peach Tree Creek . .	July 20	W. T. Sherman*	20,139	J. B. Hood*	18,832
Atlanta	July 22	W. T. Sherman*	30,477	J. B. Hood*	36,934
Atlanta	July 28	W. T. Sherman*	13,226	J. B. Hood*	18,450
Jonesborough	August 31.	W. T. Sherman*	14,170	J. B. Hood*	23,811
Jonesborough	September 1	W. T. Sherman*	20,460	J. B. Hood*	12,661
Winchester	September 19	Phil Sheridan*	37,711	Jubal A. Early*	17,103
Chaffin's Farm	Sept. 29, 30	U. S. Grant*	19,639	R. E. Lee*	10,836
Cedar Creek	October 19	Phil Sheridan*	30,829	J. A. Early*	18,410
Boydton Plank Road .	October 27, 28	U. S. Grant*	42,823	R. E. Lee*	20,321
Franklin	November 30	J. M. Schofield*	27,939	J. B. Hood*	26,897
Nashville	Dec. 15, 16	Geo. H. Thomas*	49,773	J. B. Hood*	23,207
	1865.				
Fort Fisher	Jan. 15	A. Terry	9,632	W. H. C. Whiting*	7,800
Hatcher's Run	Feb. 5-7	U. S. Grant*	34,517	R. E. Lee*	13,835
Bentonville	March 19	W. T. Sherman*	16,127	J. E. Johnston*	16,895
Appomattox Campaign	March 29, April 5	U. S. Grant*	114,826	R. E. Lee*	49,496
Dinwiddie	March 29-31	U. S. Grant*	45,247	R. E. Lee*	20,030
Petersburg	April 2	U. S. Grant*	63,299	R. E. Lee*	19,652

*Graduate of Military Academy.

The outbreak of the Spanish War found the senior positions in the regular army held by non-graduates, brave men and excellent soldiers, whose school had been the Civil War followed by more than thirty years of frontier service. The graduates of high rank had all passed out except one, General Merritt. All of the staff corps, except the scientific ones, were commanded by non-graduates, and their senior officers were of the same class. The principal commands fell, therefore, into their hands, and it was left to the graduates to distinguish themselves as line officers, regimental commanders, and staff officers which they have not failed to do. Captains and lieutenants have taken regimental commands, and one but recently a lieutenant of cavalry, J. Franklin Bell, has won by heroism and ability the star of brigadier-general in the regular army; while another graduate, Captain Eugene F. Ladd, 9th U. S. Cavalry, has just received a testimonial from citizens of Cuba for his high fidelity to trust, as treasurer in the civil government, in the disbursing of public funds to the amount of \$30,000,000.00. History will tell the work of the young graduates at Santiago, in the organization camps, in delicate and hazardous duties of scouting and reconnoissance. Although the Spanish War was but a brief episode with but a feeble resistance, it cost the lives of fourteen graduates, killed in action besides deaths from disease. In the Philippines they have been present in over five hundred actions and skirmishes, and have lost up to the present time fourteen officers in action, beside others who have died of disease. In the two wars they have served in every grade from major-general down to second lieutenant and are to be found on the staffs of every commander in the field. They still form the entire personnel of the two scientific corps—the engineers and the ordnance—with the exception of four officers of ordnance. Many of them, captains and lieutenants, have been appointed to the command of volunteer regiments and still others of junior grade are serving as field officers in these regiments.

THE SCHOOL.

Having glanced at the product let us examine the factory.

The position occupied by West Point among educational

institutions is as unique in some respects as its methods are characteristic. West Point is first of all a school of character, and it is in this regard that it stands preëminent. It must stand or fall principally by its achievement in this line of development. The wise purpose of its founders and the trend of its natural evolution have tended to make this feature of its work the dominant one, and results have shown the production of tone and morale to be the supreme end as well of a military as of all education.

The order of objective proposed in the training of the Academy is: first, the development of character; second, clear thinking; third, practical and technical military instruction.

It departs at once from ordinary educational lines in the nature of its motive force, self-interest, and in the mode of its operation which is coërcive. In this regard it follows natural lines. Providence has implanted in the human heart as the most powerful of persistent motives self-interest, whether enlightened or debased; and in its dealings with the individual, nature is pitilessly coërcive. The candidate for the diploma of the Academy has his profession as well as his education at stake, and in its dealings with him it has the autocratic power of military law—the legislative and executive authority of the nation behind it.

The only proper concern that the institution can have regarding the individual is that of exact and impartial justice. It offers him unusual opportunities and an honorable career. It exacts conformity with certain definite standards. It has no possible interest in his retention as a student other than this conformity, and its function as between him and the interests of the nation is a purely judicial one—to decide whether or not he has achieved these standards. If he fails, the connection is severed and there are thousands ready and eager to fill the vacant place.

Just here the position of the Academy is often most misunderstood both by the interested individuals and their friends and by the members of Congress, who possess the nominating power. By both, its functions as guardian of national interests and the conservator of judicial equity are generally lost sight of. The nom-

inating power is apt to look upon a cadet appointment as not differing in essence from any other appointment in the political arena, in which political factors are paramount. Many congressmen have no acquaintance with the Academy and very little, if any, knowledge of its history and methods. They nominate a candidate "because," and they wish his retention "because," and a veto by the Academy upon this political prerogative is often resented, and this, notwithstanding that Congress has passed a wise and necessary law, making the fiat of the Academic Board final as to the reappointment or retention of a cadet whose deficiency it has determined. On the other hand, the discharged cadet, his parents, and friends are bitterly disappointed and aggrieved. The young man, perhaps naturally, explains his deficiency by every reason but the real one, lack of ability or neglect of duty or study. An immediate rush is made for the congressman. The victim pleads, possibly, injustice or a dozen excuses, and begs reinstatement and the case is referred with urgent requests or demands from the member of Congress, through the war department, back to the Academic Board. When the Board stands firm, a hot resentment against the Academy is often engendered, and by the semi-annual output of deficiencies there is thus formed throughout the country many centres of disaffection towards the institution. A political creation, deriving its students and financial life from political sources, it yet has to defend its integrity at the expense of its popularity and often of the friendship of the men who legislate upon its existence. But this struggle for the integrity of its methods is vital. Destroy the independence of the Military Academy within its proper jurisdiction and its power for good is withered. Should the taint of improper political methods—the power of pull and the domination of influence—ever corrupt its blood, the hour of its decadence has sounded. The American people have created, and now possess one institution, at least, wherein the criteria of success lie in the individual—the fruit of his honest toil unaffected by the sinister bias of expediency or exterior personal interests. If there comes a time, when they fail to appreciate its worth to them practically and

morally, the future will not fail to exact from them the full price of their mistake.

ITS MORALE.

Character making at the Academy is the product of two forces, tradition and discipline. The purpose of West Point is to make a soldier who shall be an honorable, courageous, self-reliant, clear-thinking man. The material upon which it works is the most heterogeneous imaginable; youth of good education, poor education, no education at all; from the plough, the office, the machine shop, luxury, destitution, competence; with brilliant, mediocre, and little ability; with high moral development, and with tendencies colored by demoralizing environment; with strict and with lax views of the obligations of truth—just as they are selected by their congressmen. From these are to be weeded out the impossible; and of the rest, are to be moulded men whose temper is up to the standard test, so far as any human standard can be a test. West Point does this and in a way that has made its brand upon its wares recognized and respected the world over. Now and then faulty material will slip through: no human agency can prevent occasional evasions of fixed standards; but the test is the general result.

The first point in its character making is *Honor*. The views of rectitude and personal accountability, which have grown into the marrow of the institution, which are fostered by its authorities and have become its sacred code of honor, have a formative power impossible to be understood other than by experience. The Corps itself is the chief custodian and executive of this tradition, and it is this fact that makes it potent. Any code of honor which has its root in coercion lacks vital force, and its imposition carries neither conviction nor reformation. The promiscuous youth gathered from the four corners of the republic who come to West Point with many shades of habit and conviction regarding the protean aspects of a lie, are met here at the outset by one principle, uncompromising and stern. All shiftiness and evasion, the whole body of casuistry must be policed once and for

all, for a man caught in a lie is damned. He has lost his caste, and the Corps of Cadets is not for him. When this point of view is attained by a body of men, a very healthy and high plane of action has been reached. Hatred of a lie is a splendid disinfectant.

The next point in the ethical scale is very naturally *Courage*, which we who know our ethics understand to be divided into physical and moral. West Point wants both. The Corps is strenuous in its insistence upon the physical as a *sine qua non*. The logic of the matter is very simple: war is force and all its active situations demand physical bravery. A soldier is the agent of war, therefore he must be physically brave. Moral courage is admirable above physical bravery, but moral courage whose legs run the wrong way, although it may have a high and useful function, has it not on the battle-field. The Corps is, therefore, somewhat exacting in its criteria in this regard, and the Corps is right.

The third point is *Subordination*. The entire existence of the cadet is one of subordination. From the plebe to the superintendent he is surrounded by a hierarchy of graded responsibility and obligation. An order from a superior has the force of a cannon shot. To resist is not consistent with reason. And yet this subordination can coexist with certain obstinate traditions of violation of regulations and general orders very difficult to deal with. This is a paradox, but it is human and common in experience. The same cadet who would not dream of disobeying a direct order to imperil his life has long held it his prerogative to ignore the regulations and orders regarding hazing. This resulted from the fact that through many years of custom, hazing had grown with the traditions of the Academy and become established as an inherited right, a prerogative, and a duty. The yearling just emerged from the plebe chrysalis, besides the stern joy of privilege, felt that his double duty to the Academy and his successor demanded the exercise of the drastic methods of purgation and discipline which had moulded himself and his predecessors whose names belong to history. Generations of plebes had taken their medicine and had

gone their way to honor and glory. When the writer was a cadet at the close of the war of the Rebellion, veterans who counted their pitched battles by dozens, some of them wearing the shoulder straps of volunteer captains, received appointments to West Point and reported as plebes to the fierce satrap in gray, and bell buttons; braced with painful vigor under the menace of his spartan thumb; galloped astride of unresponsive chairs on imaginary cavalry charges; made up the beds and cleaned the arms of their seniors in submissive silence; and, in their turn the following year, became a part of the penitential mechanism designed to humble the spirit of the proud and bring the haughty into submission. There was no restriction upon hazing in those days. It was done openly before the officers, but like all exercise of irresponsible authority it gave opportunities to the coarser spirits to abuse their power and occasionally to carry it to brutality; and, in the course of time, some practices crept in unknown to the earlier forms. Twice has the Academy been the storm centre of a hysterical outburst throughout the country excited by hazing. The first, already referred to, concerned a colored cadet named Whittaker who was found bound in his room with a slight slit or abrasion in the lobe of his ear. A tornado of abuse in the public press was the result, stimulated by the approaching elections and negro vote. A senator from his seat in the national legislature called the graduates of West Point "Spared relics of barbarism which ought not to be tolerated in a civilized country." Whittaker was proved before a selected court martial, composed of a majority of non-graduates, to have committed his own outrages and the tempest subsided with the elections. During the Booz investigation, as in the other, a portion of the press of the country fomented the excitement by distorted, exaggerated, and false statements; and a nation worked itself into a frenzy because some heedless youngsters had pushed an old but prohibited custom to excess, although the events took place two years before and the most objectionable features of hazing had been voluntarily discontinued. But the Booz investigation has served a double purpose. It has broken up a bad custom, and it shows the country

that its student officers tell the truth without reservation or regard to consequences and have the courage of their convictions.

The fourth point is *Hard Work* for every one—the unending, uncompromising exactions of duty from reveille to taps. For four years there is no relaxation but one furlough and the very rare and brief leaves of a day or two at holidays dependant upon demerit records. Nowhere except at the national schools is so much exacted of every individual from first to last. There is no option, every cadet must exactly perform every military and academic requirement or suffer the penalty; and the high value set upon the diploma of the Academy is shown by the desperate tenacity with which its students struggle to remain. A resignation, except in face of deficiency, is almost unknown.

THE CURRICULUM.

The Academic Course is based upon three fundamentals:—*Every man in every subject: Every man proficient in everything: Every man every day.* In other words, every cadet must take the whole course, there are no optional or excepted studies: every cadet must attain the minimum standard in everything, deficiency in one subject is deficiency in the course: every cadet must be prepared to recite each day upon all the subjects of study upon which he is engaged at that time. While all of these are adhered to in principle and in practice, there is a slight qualification in each sufficient to give some flexibility of application. In the first, although all go through the same course of study, the highest men in the class go a little further in some subjects. In the second, although proficiency in all subjects is demanded, a cadet standing well in other studies may, if deficient in one, be allowed to continue and make up deficiency by the next examination or be turned back to join the next class if in the judgment of the academic board the conditions warrant this leniency. In the third, although every cadet is likely to be called upon to recite at every attendance, occasionally he is passed owing to lack of time. But the escape is so rare that it can never be counted upon, and the necessity for unremitting preparation is as great as

though there were no exception. These recitations are not merely occasional or scattered questions, but a demonstration of principle at the board or the solution of problems, and are also frequently converted into written examinations, either of principles or problems. There are, in addition, the regular semi-annual examinations for the determination of proficiency, which are now wholly written for the first two years and largely so for the remaining ones.

At these examinations the burden of proof is upon the cadet. The standard of proficiency is sixty-six per cent. Should his mark for the term in any subject fall below that percentage of the maximum in that branch he is *ipso facto*, deficient and must justify himself at examination or be discharged. Any form of deception at recitations, besides being practically impossible, is frowned upon by the ethics of the corps. The student stands absolutely upon his merits.

Each subject of study has a certain count. The *standing* of a cadet in each subject is determined by the total of his marks therein, while his *count* in the subject is obtained by giving the head man its maximum count and each other man a proportional count resulting from his marks. His *general standing* is determined by the aggregate of his counts in all subjects of study and discipline.

In order that the principle of every man every day may be carried out, the classes are divided into small sections of from ten to fourteen men, having one instructor. The student rises or falls in his class according to his weekly marks by transfer from one section to another. These marks are posted every week and each man has accurate knowledge of his status at all times. Study is in quarters during specified hours, and is varied with gymnastic and military duties.

The corner stone of the course is mathematics, and the bulk of the structure is made up of the exact sciences. The exceptions are the languages—English, French, Spanish,—constitutional, international, and military law, and general history.

The primary nature of the preliminary entrance examination

has long been a severe handicap to the curriculum, but the present Congress has modified the law regulating it, a law which was enacted at a period when the educational standard of the public school system was very primitive and imperfect. Room is needed for some advanced professional studies which are crowded out by the absolute necessity of instruction in elementary subjects which should have been completed in the high schools.

The course of study, as it now stands, is so exacting and extended that it demands under these conditions the utmost energies both of student and instructors. The heads of departments must not only lecture and supervise, but roll up their sleeves and wrestle in the educational arena with the crude and undeveloped intelligences herded into the academic fold from the four corners of the Union. The strain is very severe and unrelenting, and the writer has seen, during his service of twenty-five years, five of his associates break down under it,—all in the prime of their faculties; two forced into premature retirement with shattered health, and three dying in harness after heroic struggles against disease and heart-rending affliction. The story of their devoted lives is but little known beyond the scene of their activities; and the members of their scattered households, forced to leave their homes in the majority of cases in straightened circumstances, have only the heritage of honor bequeathed by lives of unpretentious devotion to a high ideal of duty.

It is not competent to so general a paper as this to treat of the details of the military course of instruction. Its purpose is to familiarize the cadet with the duties and needs of a private in the ranks by practical experience; to impress indelibly upon his character the habit of discipline; and to train him to the function of command by its repeated exercise.

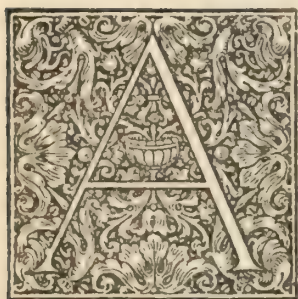
Four years of constant drill, practical instruction in military operations, and respectful submission to the will of his superiors makes him a soldier in the true meaning of the word. He may or may not have the talents of a great general, but he has at least the instincts of a soldier and a knowledge of the duties and technical requirements of his profession. He has above all an

understanding of the term "duty" which makes it the motive power of his professional life and simplifies for him all complex questions of practical ethics. The motto of his Alma Mater is the philosophy of his life. To do his "Duty," keep bright his "Honor," and serve faithfully his "Country" is the hereditary ideal of every son of West Point.



A TRIBUTE TO VERDI

PIETRO MASCAGNI, *Rome.*



AS soon as the sad news arrived of the death of Giuseppe Verdi, I rushed to Milan to give the last reverent tribute to the purest glory of Italian genius, and I was at once admitted to see the remains of one whom, not Italy alone, but the whole world was mourning. It is impossible to express the sentiments which agitated my heart, as it is impossible to give concrete form to all which passed through my mind in that painful and solemn hour. The room had been cleared of the usual furniture, there being left only the piano and a little writing desk, while between the two windows in the place of the sofa, under the great portrait of the Maestro, stood the coffin which already contained the body, while a couple of candles at the foot of the bier, illuminated the illustrious remains; these simple preparations having the majesty which comes from death and greatness. I remained immovable, breathless, with my eyes fixed on those orbs closed forever, on that forehead no more animated by the divine ray of genius, on that mouth no more susceptible to the frank and sweet smile known to all. And my thoughts hurried spontaneously to those unforgettable days, when there, in that same room, in that same spot, I had spoken with him of so many things connected with our art, had received so much advice, and had enjoyed his encouraging words and kindly

look, while my children came under the fascination of his benevolent smile and caresses.

It was in the month of April, 1898, that I was in Milan to direct the orchestral concerts at the Scala, and I lived, as usual, at the Hotel Milan, having with me my wife and children. One evening we were descending from our apartment to dinner, when, in the corridor of the first floor, an unusual bustle attracted our attention; there were men and women cleaning, dusting, and moving furniture, as busy as bees, while one, in answer to our inquiring looks, whispered, "Verdi arrives to-morrow"; and then I saw that we were, in fact, just before the door of the apartment which he had occupied for many years, during his frequent visits to Milan. At dinner, of course, we spoke of nothing else.

My children listened to the talk, wide-eyed and silent, but next day while at work I was conscious of three small figures at my side, confused, but red with determination. "Papa we want to know Verdi," began the eldest; "Papa," followed the next, "we want to see Verdi"; "Papa," piped the smallest, "take us to see Verdi." Anxious to satisfy so great a desire I took the necessary steps, and a time was set for the great interview. At last the day came. The children woke early eager and excited, as when about to go on a journey, an anticipated pleasure, and were preoccupied as though some great mission had been confided to them. They silently allowed themselves to be dressed in their best, speaking only in undertones. After a lesson as to how they were to comport themselves, the procession began, and we soon arrived at the door. Verdi himself opened it, shook me cordially by the hand, saluted my wife, and while the children kissed his hand, patted them affectionately on the head, and took my little daughter in his arms. The talk rambled over many subjects, and I then understood his vast knowledge of all the orchestras of Europe. Once when I gave him my opinion on the symphonies of Svendsen and Tchaikowsky, he interrupted me, saying musingly, "Who, in my time, would have supposed that these men would ever compose music?" But the great composer was wrong in one thing, his time is *now*,

as well as in the past. My children have never forgotten their talk with him. In his presence mute, estatic, almost paralyzed, at home beside themselves with self-importance and joy. As I stood by that bier, seeing him again alive, handsome, and noble, I thought of all these things.

Is it possible that from that brain no more conceptions will spring to maintain and enlarge the fame of our art, the glory of our country? From his breast, from his great heart, will no more songs issue to touch our people, to illumine with civilization and enthusiasm all the world? Alas! no, Verdi is dead! but he lives in our thoughts and in our hearts, and he will still live in future generations; for we shall know how to educate our children and grandchildren in the religion of art and sentiment; and he will live eternal, while the sense of the beautiful and the love of country remains, and while the last breast is capable of being touched.

Verdi leaves to the civilized world an inextinguishable patrimony of art, and so it does not seem true that he is dead. One might well say that destiny wished with the glorious existence of the Maestro to perpetuate, in the midst of man, the glory of music, the grandiose epoch of melodrama, the famous historical period of our operatic theatre, which gave to the nineteenth century the title of "Century of Melody." To that magnificent period Giuseppe Verdi belonged, together with Gioachino Rossini, Gaetano Donizetti, Vincenzo Bellini, to name only the greatest. History will record that that period was initiated eighty-five years ago with the "Barber of Seville," and was closed at the end of the last century with "Falstaff," and it will record, also, that Rossini was born in the eighteenth century and that Verdi died in the twentieth. Oh! the power of such genius, which has, for an entire century, educated the hearts and minds of many generations! To-day all would seem finished after the passing of the last of these great ones, if one did not think that there still remain their works and memory.

On that Wednesday, when at dawn, under the sad gray Lombard sky I followed the mortal remains of the Master, in the

midst of a grieving and emotional crowd, I had a new and profound impression of discouragement and loss. I felt that I was accompanying to a last repose all the Great of Italy, and it seemed that that hearse enclosed all the hopes of our art, because, Verdi living, it seemed that all lived : art, genius, men, as he personified admirably all the glory of the past, all the expectations of the future. Verdi dead, all seemed finished.

Verdi was the last, in chronological order, of the four great melodramatic composers of the nineteenth century, and he came, for the first time, on the battlefield of art, when Rossini was already voluntarily and obstinately silent, and was wrapping himself in the grandeur and fame he had won ; when Bellini had died before his life had reached the meridian of love and strength ; and when Donizetti, already weakened by so many sorrows and misfortunes, was drifting inevitably toward that mournful and cruel end. Then the figure of Verdi seemed as though called by destiny to fill the void left by those great ones. For the olympic idleness of Rossini he substituted a firm will and much work, never weakened even in his later days ; for the sweet existence of Bellini, so soon and so dolefully broken, he substituted a firey and robust life, full of vigor to the end ; for the "spent flame" of Donizetti, he offered the comfort of a stubborn brain, severe and illuminated, which remained intact to the last moments of his strong and unique life, unexpectedly cut off by one stroke, like an oak.

To-day, in a short examination of the whole course of Verdi's life, admiration for the man and musician beguiles and fascinates, paralyzing any conception and all expression of opinion. There is no other example so full of such universal veneration towards a man, as a man, as in the case of the Maestro ; all, emperors and kings, nobles and peoples, reverently incline before him who had such firmness of character, such magnanimity of heart. And the beneficent and generous act,—the installing and endowing a home for poor and aged musicians,—which has closed his earthly existence, will perpetuate his memory in the souls of those benefited, and in the minds of those who love

their fellow men. For the musician any and every expression of enthusiasm becomes thin and superfluous, after three generations have followed him with affectionate minds, touched, and admiring the development of his great and fruitful work.

To the artist I wish to pay a modest and sincere tribute of devotion, expressing my personal views about him.

In the music of Verdi, men and things always find a mirror; among the dear and familiar melodies there is not one which does not reflect a remembrance, a joy, a sorrow, or an incident of some kind; for it is music which corresponds so marvelously to human feelings, it is music which reproduces ideally the past life; and thus the enthusiasm, emotion, and great popularity which accompanied his work in every country, all the world over.

To Italians, however, the music of the great Master should represent something more than it does to other peoples. Foreigners admire the creative faculty of Verdi, his expression of sentiment, and his powerful genius, which continued and renewed musical art, spreading everywhere its rays of light. Italians ought to fix their gaze beyond that universal and spontaneous enthusiasm, even beyond legitimate and national pride, on the mission which Verdi's art had during a period of more than sixty years. It was a mission doubly holy because his thoughts were turned solely, and with intensity, toward the affirmation of Italianism (*Italianità*) both in politics and in music. I will not speak of the spirit of patriotism of Verdi, because there is no one who does not know what a fascination his songs exercised over those oppressed people, who panted for the day of deliverance. But I must pause to consider that Italianism in music which he defended and supported up to the end of his long existence, and which is now abandoned to an unknown fate.

The Maestro felt intensely that his art was menaced; and as at first, he had received the inheritance of his three great predecessors and continued that stupendous period which was as short as it was marvelous, so, afterwards, he felt himself called upon to revindicate the national music, and he did defend and support it, not only by word but by his works, which marked an ever

increasing ascension. Providence had endowed him with such strong fibre, both of body and mind, that his mission was able to exercise its noble influence to the greatest extent. The public, although acknowledging the origin of the first works of Verdi, were astonished at their melodious waves, clear and vibrating, and still more at their marked and vivacious rhythm, sometimes sharp, sometimes violent. There were even some who protested against this kind of music, so crude and coarse, the creation of a rude and uncultured genius.

It was, on the contrary, the fury of genius which burst impetuously and tumultuously from the great soul of the composer, and it was, perhaps, the voice of the people, which, unconsciously, in the sincerity of musical expression, preceded coming events. So true is it, that when later the days of trouble came, and when the Italians in their time of anguish and doubt, sought eagerly for some ideal to reanimate their weary spirits, some banner which would show them the way of hope, then they all rallied around the name of Verdi, around that music, which, with its vivacity, its hardness, its violence, was able to inspire new courage in every heart, to lead the troubled people to victory, and to rouse such patriotic enthusiasm as to glorify and immortalize the name of Verdi as a symbol of the resurrection of Italy.

The political mission of Verdi could not have accomplished a more fruitful or greater action, for the good of the country than this; and he never failed one single moment of his life to proclaim the patriotism of his sentiments. Sufficient for all was the example of his "*Vespri Siciliani*" (Sicilian Vespers), an opera written for the grand exhibition of Paris in 1855, the subject of which could not certainly have been pleasing to the French. But if the result of the political mission of the composer obtained the unanimous approval of the public, up to the memorable apotheosis of the first performance of the "*Ballo in Maschera*" at Rome, in 1859, when great events preluded the beginning of the deliverance, quite a different fate was in store for his artistic mission, for when Verdi gained from the patriots the title of "Master of the Revolution," he had already been named by the musical critics,

"Apostate of Italian Music," and yet, he had been fighting for country and art with the same weapons. It was after "Nabucco" that the accusation was raised against him of being wanting in artistic patriotism, an accusation, however, confined to the restricted camp of a conceited and ignorant few, who, in the new form of melodrama, had lost their accustomed guiding lines, and had begun to bark at the heels of the Master who longed to abandon every tradition and mark with his works an epoch of absolute advance in music. "Nabucco" triumphed with the public, and criticism was of no avail. That same absolute advance, then so much lamented, now represents an enormous stride on the victorious road trodden so indefatigably by Verdi. His way was that of the purest glory, for every milestone marked another proclamation of the artistic taste of the nation. On that long road he found immense difficulties, and infinite troubles; but he was conscious of no doubt, of no uncertainty. Having surmounted the first discouragements, after the failure of the "Un Giorno di Regno" (The Reign of a Day) he recovered his firm step upon the steep hill and never paused again. Neither did he stop because of the wounds inflicted over "Giovanna d'Arco" (Joan of Arc) and "Alzira"; nor rest after the piercing thrusts received because of the "Masnadieri," when his name was covered with reproach in London; nor even the grief for "Simon Boccanegra" arrested his ascending course, and he did not deign to notice by one glance those malignant spirits who rejoiced at what they called the setting of his star, after twenty works performed at all the Courts of Europe. He would look at nothing, listen to nothing, but continued his upward way, the summit of which was reached on the success, in 1871, of "Aida." What a road he had traversed!

There was the long period which reaches to the "Battaglia di Legnano" and includes all the patriotic operas, which were called by the back-biters "Opere di occasione" (Bargain Operas), but by history reckoned amongst those which formed and completed the man and artist, and also the first works, when his young and strong imagination had overthrown the flood of expiation, and

when his style was beginning to trample on the origin and tradition of the school of the time. Then the other period began with "Luisa Miller" and closed with "Ballo in Maschera," containing amongst others the "Rigoletto," the "Trovatore," and the "Traviata." Then came "La Forza del Destino," (The Force of Destiny) and "Don Carlos," which were a preparation for "Aida." There are some who place "La Forza del Destino" in the second period, but I consider that it is nearer "Aida," perhaps more so, even, than "Don Carlos." In my opinion the "Forza del Destino" is the only opera which marks a real transition, in all the productions of Verdi; and its great popularity is due to the freshness and sincerity of the inspiration, almost the last flash of his bold and youthful impetuosity, joined to a nobler and more aristocratic principle of form, although not always with sufficient equilibrium.

On the other hand, the unpopularity of "Don Carlos" may be attributed to the form already rendered perfect, which seems to have been the great preoccupation of the composer, to the manifest detriment of the inspiration. Others blame the tedious libretto which is of no interest whatever, for the unpopularity of "Don Carlos"; others, again, charge Verdi with the sin of having wished, to his own disadvantage, to imitate Meyerbeer. I find myself most in harmony with those who hold the first opinion, certainly not with those who hold the second. One would have to forget entirely "Aida," which is continually present to us all, and which unites in its essence the rarest form, more complete than that of "Don Carlos," and the most pure and sincere inspiration again let free by the always fresh and fruitful imagination. Many believe in the false legend that Verdi, up to the time of "Aida," had not a sound musical culture, and that he was ignorant of the new technical progress, which had been made in music, and did not notice even the change in public taste, while there did not lack some to say, to the ingenuous, that Verdi had bowed the head to the victorious invader, and had paid his tribute to foreign influence. Also after "Aida" some suppressed murmurs had given rise to such an insinuation.

These critics, in their unconsciousness and ignorance, were renewing the accusations launched against Verdi forty-five years before, after the "Nabucco," with the difference, that in 1842, the accusation of being wanting in artistic patriotism assumed the importance of a profanation of the national art, because the sentiment of patriotism was great and keen in every breast, whilst in 1887, the accusation was repeated almost with pleasure, as if it were a good thing to see our purest glory yoked to the car of the stranger's art. However, "Aida" and "Otello" will last longer than such stupid and ignorant assertions, and will remain as incontestable proofs of the supreme proclamation of Verdi of the nationality of art, and at the same time as unassailable documents of the constant progress of him who has guided the whole musical evolution of Italy for more than half a century. Verdi certainly never neglected in all his artistic life any study, any investigation which would enable him to acquire any secret of the new theories, and of the recent reforms, from wherever they might have come; and he who writes can affirm that no man was more cognizant of the artistic movement in Italy and in other countries than Verdi. But through the whole of his life, during the long period rendered famous by his productions, he was always sincerely and admirably Italian. However, the artistic mission of the Maestro had not reached its end. Young men arose and he followed them anxiously, full of hope in their first steps. Alas! his great dream was not to be realized. The young ones had taken the wrong way. He saw that the whole of his work had become almost barren; he saw the real danger for the national theatre, so thought he would warn those who had lost their way, that he would call them back to the straight road, that he would save them and with them the future of Italian music. He knew he was old by the years he could count, but he felt still strong and vigorous, and that he could not overcome the fever for work. It was still his holy mission, so at the age of eighty years, Verdi offered with "Falstaff" the most marvelous example of intellectual power and gave to the melodramatic theatre the newest, the boldest direction. But it is

impossible, now that Verdi is dead, to carry one's thoughts back to that memorable day without feeling heart-break.

He gave another and the very last proof of his feeling for the Italian school at the age of eighty-six, with fire and exceptional faith, but it was not for the theatre that he wrote. Verdi had already composed the "Requiem Mass" for Manzoni, in 1874, in which it seems that he took the idea of the æsthetic conceptions of Peter Lichtenthal, and then allowed free course to his own fancy and to his own feelings. Hence the reason why every word, every phrase corresponds faithfully and sincerely with the musical expression, hence the great and intense effect produced on all who hear it. When he arrived at the most momentous years of his existence he turned his thoughts once more towards religion, but he would not use in any way the new precepts, the dogmas, and reforms which to-day regulate church music. Impatient, as always, of every formula, he produced his last composition, calmly writing his "Pezzi Sacri" (Sacred Pieces) with that same expression of sentiment so natural to him, and which, in its devotion and piety, assumes a very special character. Verdi, who will remain in the history of music as the strongest, the most sincere, and the most capable interpreter of human and dramatic sentiment, wished to leave men and earth with his soul full of prayer and piety.

It was the last and the holiest sign of his mission as musician and as man, it was the last warning, it was the last inheritance which goes to swell the immense patrimony of art and of feeling, which the great Master leaves to the Fatherland, and which will bring forth fruit gloriously, restoring the men already weakened, and our music already impoverished, and will lead all and every one to the goal which was the object of his career, and which was the dream of all his pure and stainless life: Italianism in music.

THE LAW OF HISTORICAL INTELLECTUAL DEVELOPMENT

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HAVE been honored by the Editor's request to give a summary of my lecture on the 21st of last September at the Petit Palais, under the auspices of the École Internationale de l'Exposition on "The Law of Historical Intellectual Development." One's own views are more easily stated with clearness if set forth in relation to the better known views of others. And I shall endeavor, therefore, to give lucidity to this brief summary of what has really been the work of a lifetime by stating, in its relation more particularly to Comte's "Law of the Three Periods," the law which I first enunciated in my "New Philosophy of History," published in 1873, and which I restated at the Petit Palais in the more complete and verifiable form due to nearly thirty years more, not only of special research, but of effort to master the splendid results of general European research bearing on the discovery of such a law.

The "Law of the Three Periods," to take Comte's own statement of it, is this: "that each of our leading conceptions, each branch of our knowledge, passes successively through three theoretically different periods: the theological, or fictitious, the metaphysical, or abstract, the scientific, or positive. In other words * * * at first the theological method, then the metaphysical method, and, finally, the positive method. Hence three kinds of philosophy, or general systems of conceptions, on the sum total of phenomena, which mutually exclude one

another.”¹ Such was the generalization which Comte continually refers to as “la grande loi philosophique que j’ai découverte en 1822.”²

This so-called “Law,” however, belonged with innumerable others to that earlier synthetic period which marks the history of all great scientific theories, that period in which relevant, ascertained facts are so few, so unsifted, and so unclassified, that attempted generalizations can be, at best, but suggestive hypotheses.

But this earlier synthetic period extending, say from Turgot and Hume, in the middle of the eighteenth, to Hegel and Comte, in the beginning of the nineteenth century, has been succeeded by a long analytic period of the most varied inductive researches. These have resulted, first, in discovery of the distinctive character of primitive (or relatively primitive) conceptions of nature; secondly, in discovery of the main conditions of the origins of civilization, and therewith of intellectual development; and, thirdly, in discovery of the stages of intellectual development through discovery of the general process of thought as also of things; of the unity and synchronous epochs of civilization; and of the distinctive character of scientific (or relatively ultimate) conceptions of nature. And my suggested Law of Intellectual Development consists simply of connected generalizations of the results of research thus indicated, and is put forward, therefore, as a contribution to that later synthetic period of the new philosophy of history which is founded on at least approximately adequate collections of facts.

I. PRIMITIVE CONCEPTIONS.

As to primitive conceptions of nature the generalization which

(1) “Consiste en ce que chacune de nos conceptions principales, chaque branche de nos connaissances, passe successivement par trois états théoriques différens : l’état théologique ou fictif ; l’état métaphysique, ou abstrait ; l’état scientifique, ou positif. En d’autres termes * * * d’abord la méthode théologique, ensuite la méthode métaphysique, et enfin la méthode positive. De là, trois sortes de philosophies, ou de systèmes généraux de conceptions sur l’ensemble des phénomènes qui s’excluent mutuellement.”—*Philosophie positive*, t. i. pp. 3, 4.

(2) *Ibid*, t. iv. p. 653.

I would submit endeavors to synthetize, not only certain psychological facts, but more especially a certain wide range of folk-lore facts. These will be found, first, in my edition of scrupulously literal and exhaustively classified translations from the whole cycle of Greek folk-verse and folk-prose, with the accompanying analysis of the facts therein found illustrative of primitive conceptions ;¹ secondly, in all other trustworthy collections of spontaneous expressions of folk-conceptions unaffected, or but slightly affected, by culture-conceptions, and especially in the more genuine collections of Keltic folk-poesy ; and, thirdly, in such collections of facts with respect to custom, ritual, and magic, as Mr. Frazer's "Golden Bough," actions of these various classes, if found interpretable by, and deducible from, the ideas discovered by our analysis of folk-poesy, verify our definitions of these ideas. Briefly, the sources of the facts I have first generalized are chiefly folk-poesy and folk-custom and especially folk-magic, the former being regarded by our new method as initiating us in the mysteries of folk-thought, and the latter as presenting problems which, if found solvable by the folk-ideas we have acquired, will show that we do not bear the thyrsus only, but have been truly initiated. And the general conclusion reached by this new method of research with respect to those primitive conceptions (a verifiable definition of which must be the basis of any law of historical intellectual development) may be thus formulated :—

Man's primitive nature-consciousness is characterized by two correlative sets of conceptions : conceptions occasioned by sensations, and synthetizing objects and persons indifferently as sentient powers, exerting and acted on by quantitatively undetermined influences ; and conceptions occasioned by emotions, and mythicizing the more impressive of existing or traditional objects and persons, or their distinguishing characteristics, as also those of events, as supernal (not as yet supernatural) beings, exerting and acted on by similarly undetermined influences ; and the intuition of universal interaction manifested in these correlative forms may be termed panzoism.

Analyzing this generalization let us consider more particularly what it affirms as to primitive conceptions of nature. It affirms, in the first place, not only one set, but two correlative sets, of conceptions, that is to say, two sets of conceptions related to each other as coexistents, and neither of them presenting any trace of being derived from, or sequentially connected with, the other. Of these correlates, the one is stated to be formed of conceptions of things, whether by us distinguished as inanimate or animate, as sentient powers; and the other, of conceptions of the more emotionally impressive things as supernal beings. And three classes of such supernal beings are indicated by our generalization. Actual objects and persons with mythical atmospheres about them; such as, for instance, the elemental powers to which Prometheus appealed; the oak and the corn-plant; the cow and the horse; kings generally, and especially weather-kings, kings of fire and water, kings of the wood, etc., form the first class. Personalized characteristics of objects, persons, and events form the second class, and may be illustrated from Greek folk-poetry by such 'Εξωτικά, or "Outsiders," as the Τραγο-υδίστρια, Λάμια, and Νηρηίδες personalizations of the strength and beauty, but treachery and cruelty, characteristic of the gleaming sea, of mysterious wells and fountains, and of dread mountain recesses, etc.; by the στοιχειόν, ζωή, δύναμις or ψυχή, in which is personalized what is supposed to give its characteristic energy to an object or person; and by such beings as the Μοίραι, Χάρων and the Βρυκύλακας,² personalizations of the inevitable fatalities, deadly remorselessness, and haunting terrors characteristic of

(1) Ὀδῖος αἰθὴρ καὶ ταχύπτεροι πνοαὶ, κ. τ. λ.—*Prometheus Vincit*, 88, etc.

(2) This, though the most common, is only one of the Greek names of the Vampire. In the great Chaldean epic of the third millennium, B. C., Istar in Hades gives utterance to the threat, "I will cause the dead to arise and devour the living." And the phantasm of Achilles is represented by Euripides, as appearing in golden armor at his tomb, and as being appeased by the sacrifice of a young virgin whose blood he drank.—*Hecuba*, 533-5.

events. Finally, traditional objects and persons in mythical shapes such as, for instance, the Greek Ἕλληνες ἀνδρειούμενοι, the Keltic Cuchullain, Fionn, and Arthur, the Greek Δράκος, and Keltic *Sith*—all of them certainly, in their historical origin, personages of a far more prosaic character than has been imagined for them in the poetizing heavens of folk-memory—form the third class of supernal beings.

The above stated generalization further suggests, at least, the psychological explanation of the affirmed correlation of the conceptions of sentient powers and supernal beings. They synchronously arise from the very nature of mind as a differentiating and integrating sentiency, and of the human mind—mind so far developed as to be capable of self-expression in articulate speech—as capable both of sensations and emotions, and possessed of developed faculties of differentiation or abstraction, and of integration or imagination. Hence, as did Lyell, so may we explain primitive and contemporary phenomena from precisely the same causes. For the mythical atmospheres with which we find objects and persons suffused in folk-poesy, the personifications which we find in it of abstract characteristics of objects, persons, and events, and the mythical shapes into which we find fore-runners and ancestors transformed, do not differ essentially from the similar creations in which we all, more or less, and especially the child and the poet, give expression and satisfaction to our emotions of wonder and admiration, of fear and terror, of gratitude and love, etc. In the capacity of being emotionally disturbed by things (objects, persons, and events) there are doubtless great differences between the sexes, between individuals of each sex, and between races; and there are, perhaps, still greater differences, sexual, individual, and racial, in the capacity of forming the mythicizing and personalizing conceptions which give imaginative expression to emotions. But, whatever the differences in its degree, this capacity is common both to the contemporary and primitive man of articulate speech. And the only important difference is, that now, except in the case of theological creations, the imaginative conceptions, which synthesize

impressions, or satisfy aspirations, are known to be subjective; while, in the past, there was no differentiation as yet between subjective and objective, and hence, however purely subjective personalizing conceptions might be, they were ingenuously taken for objective supernal beings.

We come next to the third, the most general and important of the conclusions above affirmed with respect to primitive conceptions. Whether things are conceived as sentient powers, or as supernal beings, they are affirmed to be conceived as exerting and acted on by quantitatively undetermined influences, and these two correlative conceptions are, therefore, affirmed to be expressions of an intuition of universal interaction. The first ground of this generalization is afforded by the great classes of folk-lore facts which present objects, both inanimate and animate, as responsively sentient powers; which testify to the conception of the solidarity of objects through mutual influences, and which present objects as unlimitedly transformative powers.¹ And the second ground of this generalization is such a deductive verification of these presentations of objects as proves them to be expressions of genuine belief. For the test that distinguishes genuine from merely ostensible belief, is action. Hence, if things are not merely spoken of as, but actually believed to be, responsively sentient powers, exerting mutual influences, and unlimitedly transformative, there will necessarily follow, not only the inference that the state of one thing indicates that of another, and that the action of one thing affects that of another, but also proceedings giving effect to such inferences attempts to predict the events and control the forces of nature through knowledge of these forces. Now, proceedings with just such aims we discover in folk-magic. For its arts—which I have classified as arts of operation, of divination, and of coöperation²—are simply the means by which the

(1) For illustrations of these three classes of facts see *Greek Folk-poetry*, vol. ii.; *Appendix*, pp. 505, *seq.*

(2) By this last I mean to indicate the ceremonies at the folk-festivals of nature.

attempt is made to fulfill these aims of prediction and control. And as yet the mythical creations which I have termed supernal beings are conceived to be, as parts of nature, within the circle of its interactions, they are believed to be compellable by magical arts, rather than persuadable merely by precatory rites, and are, therefore, *not* supernatural beings.

Briefly consider now this theory of primitive panzoism in relation to other theories of primitive conceptions, and in relation first to Comte's primitive fetichism.

"A complete state of pure fetichism," he defines as "constantly characterized by the free play of our tendency to conceive of all exterior bodies, whether natural or artificial, as animated by a life which is essentially analogous to our own, with simple, mutual differences of intensity." ¹

But three points are thus missed which, I submit, are of the utmost importance as features of the primitive conception of nature as revealed by combined studies of folk-poesy and folk-magic. These are, first, the conception of universal interaction; secondly, the synchronous existence of two such correlative conceptions as those of sentient powers and supernal beings—correlates which we shall presently find to have been the germs of all the conflicts through which intellectual development has been achieved; and thirdly, the conception of interaction as quantitatively undetermined. As to the spiritism of Mr. Spencer's "Ghost-theory," and of Dr. Tylor's "Animism," two remarks must here suffice. The theory of the origin of these alleged primitive conceptions in the cogitations of "Savage Philosophers" on a certain long list of phenomena will, I venture to think, rank in the future as one of the most self-contradictory, as well as baseless, of philosophical theories which has ever had a vogue, like it, of more than a quarter of a century. And these spiritist theories

(1) "Un état complet * * * de pur fétichisme, constamment caractérisé par l'essor libre de notre tendance primitive à concevoir tous les corps extérieurs quelconques, naturels ou artificiels, comme animés d'une vie essentiellement analogue à la nôtre, avec de simples différences mutuelles d'intensité."—*Philosophie positive*, t. v. p. 30.

become almost humorous when we find that the "Ghosts" or "Spirits" which they allege to exist in primitive conceptions, and of which they endeavor to explain the origin, are really late culture-notions, and are not found at all in the records of genuine folk-thought, in which supernal beings are always materialistically conceived, though supposed, like all other things, to be capable of unlimited transformations, and hence to be sometimes visible and tangible, and sometimes invisible and intangible.¹

THE CONDITIONS OF DEVELOPMENT.

An indispensable step in the advance towards the discovery of a "Law of Historical Intellectual Development" has, we may reasonably believe, been achieved in the apparently fully verifiable generalization above stated as to primitive conceptions of nature. We may also congratulate ourselves on a result which, in presenting two such correlative elements as sentient powers and supernal beings, presents conditions of conflict analogous to those which later biological research has shown to be indispensable to evolution, and, indeed, to existence. But here we stick fast. For the very condition of our discovery, as we believe, of primitive conceptions in still living folk-poesies is the tough conservancy and unprogressiveness of the folk-mind. How, then, did that unquestionable intellectual development come about of which we are endeavoring to discover the law? This question has been answered, but in a way curiously illustrative of the consistency generally found in human errors. With the theories—as I think we are now entitled to say—the erroneous theories hitherto as to primitive conceptions of nature, there have gone equally erroneous theories as to the origin of civilization, and, hence as to the origin and history of intellectual development. With such theories as those of Comte and Spencer as to primitive

(1) As, for instance, Athene when she puts on the *κυνέη* "Aïdos. Il. v. 845. Compare the "Tarnkappe" of the Nibelungenlied, etc.

conceptions, there go theories of a spontaneous and sporadic rise of civilization by apparently some sort of inward necessity (so vaguely or unverifiably defined by these authors): these are all determining conditions. But still it remains true, not only that, as Niebuhr, nearly a hundred years ago, said, "no single savage race can be named which has risen independently to civilization,"¹ but that, as Sir Henry Maine, nearly fifty years ago, said, "nothing is more remarkable than the extreme fewness of progressive societies." He added that "the difference between the stationary and progressive societies is one of the great secrets which inquiry has yet to penetrate."² And I would add that, unless inquiry does penetrate this great secret, a "Law of Historical Intellectual Development" cannot be discovered.

Now, just as the psychology of the individual has for long taken account of cerebral and other material conditions, so must, in the future, the psychology of the race. It has been found that recent mammalian and other animal forms have a greatly increased bulk of cerebrum as compared with their early Tertiary or Mesozoic forebears. The more recent genus *homo* in particular has an immensely increased mass of cerebral tissue as compared, not only with the more ancient pithecoïd genera, but with the possibly synchronously developed anthropoid genera. As, however, the lesser size of the brain was clearly sufficient for the preservation, under ordinary conditions, of the lives of the older genera, it has been noteworthy suggested that *educability* was the correlate of the increased size of the cerebrum in the later genera, and in man.³ But at a very remote, if not at the remotest, period to which our knowledge of mankind goes back, there

(1) *Römische Geschichte*, Theil, i. § 88.

(2) *Ancient Law*, pp. 22, 23.

(3) See Ray Lankester, *The Significance of the Increased Size of the Cerebrum in Recent as Compared with Extinct Mammalia*.—*Nature*, 26 April, 1900. Reprinted from the jubilee volume of the *Société de Biologie*, of Paris, 1899.

were races of very different degrees both of intellectual capacity, and educability;¹ and the skulls of the fair northern or boreal races of civilization—if, as such, we may distinguish the ruling races of Chaldea and Egypt²—from the first differed as much as, if not more than, they now differ from the skulls of the dark southern or equatorial species of mankind. Yet, according to the theories still in vogue—the theories of Dr. Tylor, Sir John Lubbock (Lord Avebury), and Mr. Spencer—it is “possible and desirable to eliminate considerations of hereditary varieties or races of men, to treat mankind as homogeneous in nature,”³ and still to explain the origin of civilization and of intellectual development. Against, however, the implicit or explicit postulate of these theories—the equality of human races—I have always protested.⁴ Synthetizing the relevant results, not only of ethnological, but of Assyriological and Egyptological research, I have shown that the only primary civilizations, of the origin of which we have any considerable knowledge, originated in those river valleys of the Euphrates and the Nile in which the fair and dark, the boreal and equatorial races with their higher and lower capacities and educabilities first, perhaps, came into conflict. And hence the second of the generalizations constituting the law of historical intellectual development may be thus stated:—

Intellectual development, independent of further increased size of the cerebrum, originated as a result of, and has proceeded under con-

(1) Both the higher, commonly referred to as the Cro-Magnon type, and the lower, variously distinguished as the Spy, Neanderthal, or Cronstadt, type, appear to have lived in the Pleistocene period.—Geikie, *Prehistoric Europe*, p. 559.

(2) Compare, for instance, the skeleton last discovered in Egypt, and apparently the oldest yet found.

(3) Tylor, *Primitive Culture*, vol. i. p. 5.

(4) Compare De Gobineau, *Inégalité des Races Humaines*, 1853-55, and Pott, *Ungleichheit der Menschlichen Rassen*, 1856.

ditions derived from, those conflicts of higher and lower races in which likewise originated (about, perhaps, 8000 B. C.) progressive civilization.

This, then, is the "great secret of the difference between stationary and progressive societies"—such a conflict between ethnically or culturally higher and lower races or classes in progressive, as there is not in stationary, societies. And on finding it to be the fact that, as Chaldean and Egyptian discoveries prove, civilization, and with it, intellectual development did originate in such a conflict, we shall see that neither could otherwise have arisen. For how could civilization have arisen without an accumulation of capital? How could there have been such an accumulation save as the result of systematic and persistent labor together with restraint on the consumption of its fruits? And how could individuals of a homogeneous race have had the authority permanently to impose on others of the same race the sacrifices required by such labor and restraint? And see how it was that, with such economic conditions as those given by such an origin of civilization, there went also necessarily the origin of a new aeon of intellectual development. Only educability greater than that of their pithecoïd kindred was given to human races by their larger brains. In the original homogeneous clans of the fair race there was probably neither any considerable leisure, nor any pressing need, for the development of their latent capacities. But when, as northern immigrants, they succeeded in imposing themselves on the dark equatorial races who had extended themselves into the Nile and Euphrates valleys, the conditions of their existence changed. Appearing to the dark aborigines as gods, even as white settlers in modern times have often been regarded, and inducing them, even as white settlers to this day induce dark aborigines to work systematically under direction, the colonists of Chaldea and Egypt naturally obtained for themselves wealth and leisure. And this leisure the very conditions of their rule would force them to devote to intellectual work, and especially to those astronomical observations resulting in the discovery of the year,—the discovery,

achievement of which led to prediction of, and hence power over, the devastating inundations of the Euphrates and the Nile ; made possible a systematic agriculture ; and led to the institution of regularly recurring religious festivities.

III. INTELLECTUAL STAGES.

Cerebral development had added to the capacities necessary for preserving existence, educability by new conditions. One of the first results of this excess of brain over what was necessary for mere material existence was, I think, in the case of man, the origin of articulate speech, and the capacity of forming general conceptions of nature. A far later result, when all desirable areas of the planet had been so occupied that higher races encroached on the habitats of lower races and,—as in such valleys as those of the Euphrates and the Nile where these lower races could not readily trek-off,—made of them laborers, was, as we have just seen, the origin at once of civilization and of a new aeon of intellectual development. Corresponding with this psychical development, however, there does not appear to have been any further increase of cerebral mass, though there was probably an increase in the complexity of cerebral convolutions, and a change, therefore, in physical quality, though not, as when educability was developed, in physical quantity. But whatever the relations between psychical and physical evolution in this new aeon of intellectual development, we have now to endeavor to distinguish in its history definite and verifiable stages. And these stages should certainly be greatly illuminated for us by the facts we have ascertained as to primitive conceptions, and the facts which we may still more certainly know as to contemporary, or scientific, conceptions of nature. We have found that the most general characteristic of primitive conceptions was the notion of universal interaction, and we know that such a notion is characteristic also of scientific conceptions of nature. But, whereas the transformations resulting from universal interaction were, in the primitive notion of it, conceived as *not* quantitatively determined, they are, in that scientific notion of interaction which is demon-

strated by the facts generalized in the Law of Equivalent Transformation, known to be quantitatively determined. And the history of intellectual development is thus seen to be the history of the advance from the former to the latter notion of universal interaction.

The conditions of the beginning of a movement towards a verifiably quantitative conception of interaction must certainly have been such as would afford at once means of, and stimulus to, measurement of periods and of forces. Such conditions the economic results of the conflict of higher and lower races afforded. For the direction which the higher race justly assumed to give to the labor which they enforced on the lower race would manifestly necessitate the rise of those earliest of the exact sciences, mathematics, astronomy, and mechanics. But the economic results of the conflict of higher and lower races which determined the origin of science, or the conception of quantitatively determined interaction, determined also, not merely a development of magic inimical to the progress of science, beyond a certain comparatively low degree, but a development of the conception of supernal beings compellable by magical art into that of supernatural beings appeasable only by the precatory rites, which endowed priest-hoods were charged with performing. For the very success of the higher race in acquiring influence over the lower race and compelling them to work under direction would break up their native customs, and hence weaken or destroy the sanctions of their morality. How, then, were these sanctions to be replaced, and the domination of the higher race assured save by more effective fears than the small number of the immigrants could excite? Account must, indeed, be taken of very many causes if one would duly explain the origin of any of the great religions of civilization. But it can hardly, I think, be doubted that one very potent cause of the development of homely supernal into stately supernatural beings, worshipped in elaborate and grandly spectacular rites, was the need, the very practical and pressing need, of cultivating every germ of the emotions of reverence, awe, and fear, in order to the due discipline of the lower races. *Primus*

in orbe deos fecit timor. It would be truer to say that it was the gods who first excited penetrating and permanent fear,—the gods imagined by the higher races, and by them enthroned in ecstatic Heavens and agonizing Hells, the retributions respectively of the Good and Bad, according to the judgment, of course, of the ruling race.

Still, it was ages before completely supernatural religions were established,—religions supernatural, not only in their prescription of precatory rites, and proscription of magical arts, but supernatural in their underlying intellectual principle. Such religions we do not find till after the sixth century B. C. The ages of intellectual development previous to that revolutionary epoch can, therefore, be generally characterized only as marked by the gradual development of the antagonisms latent in those correlative conceptions of sentient powers and supernal beings, the constituents of primitive panzoism. Supposing civilization to have originated, as now appears probable, about 8000 B. C., there had been seven thousand five hundred years of intellectual development before the sixth century B. C. But our knowledge of these remote millenniums is hardly, I fear, as yet sufficient to justify the attempt to define even the larger stages of the gradual development from primitive panzoism to such religions as those against which, in the sixth century B. C., broke out that great revolution which substituted, or attempted to substitute, for these religions of custom, Religions of Conscience. I was, I believe, the first, thirty years ago, to generalize the very remarkable synchronous facts of this great epoch as a moral revolution embracing all the countries of civilization from the Hoang-ho to the Tiber.¹ And it is unnecessary for me here to do more than point out the following general facts. Common as an exoteric Polytheism and esoteric Pantheism were to all the earlier religions, we find the new religions of, and subsequent to, the sixth century B. C., distinguishable into two antagonistically different classes. The new religions of Farther

(1) *The New Philosophy of History*, 1878, pp. 208-16 and 384-401.

Asia, though, so far, like the new religions of Hither Asia and Europe, that they were religions of conscience rather than, like those of which they took the place, religions of custom, were yet clearly distinguishable from the western religions in retaining the fundamental conception of panzoism, the conception of immanence of power in nature itself, and were, therefore, still esoterically pantheistic and atheistic. But the new religions of Western Asia and of Europe,—Judaism, half a millennium later, Christianity, and, after another half millennium, Islamism,—were, on the contrary, for the first time supernatural religions, not in their popular forms only, but in their essential principle, the conception, not of a power immanent in, but of a creator independent of, nature.

The complex causes of the development of this thoroughly supernaturalist conception cannot here be distinguished and defined. It must here suffice to note that it was, from the first, and has historically been a distinctively Semitic conception; that the correlate of the Semitic belief in an absolutely conceived Creator-God has been incapacity for such relativity of conception as is required in all the greater departments of intellectual effort; and hence that economic and social causes having imposed the yoke of Semitic supernaturalism on the Aryan races, the creators of science, of the drama, and of jurisprudence; the age since the sixth century B. C., has been marked by the most varied conflicts between supernaturalist and naturalist conceptions. In the classical half millennium, the first of that modern age which, in general history, must be dated from the sixth century B. C., the naturalist and supernaturalist conceptions (the ideas of a power in nature immanent, and of a God above nature transcendent) were independently developed; the former in Greece, the latter in Judea. But in the second half millennium of the modern ages (1-500 A. D.) the conflict between Greek and Hebrew world-conceptions, between the conceptions respectively of evolution and creation definitely began in the conflict between Neoplatonism and Christianity. With the cessation of this conflict in the triumph of Christianity came the true mediæval period, and night of the dark ages in, at least, the Western Empire

(500-1000 A. D.). The conflict was renewed in the next, the brilliant feudal half millennium (1000-1500 A. D.); and not only the ban of wizardry and atheism under which scientific thinkers, and even a Friar Bacon, then worked; but the issue of scholasticism, in the fatal affirmation that a proposition might be at once dogmatically true and rationally false, sufficiently prove how opposed the fundamental ideas of science were seen to be to the established Semito-Christianism. And finally, in our present fifth half millennium period since that great revolution common to the civilizations both of Asia and Europe, the conflict between the conception of immanence of power in the kosmos, and hence law, and the conception of transcendency of power in a creator, and hence miracle, entered, with the sixteenth century, what would appear to be its last stage, issuing, as it seems likely to do, in the triumph of Greek Naturalism over Hebrew Supernaturalism.

Summing up all the foregoing, the third clause of the "Law of Historical Intellectual Development" may be thus stated:—

In an historical survey of intellectual development since the origin of civilization, stages are presented in the past, and a stage may be inferred in the future thus characterizable: a first stage, marked by the incipient development, in sub-stages, hereafter to be distinguished, of the antagonisms latent in primitive panzoist conceptions, and progressively manifest in the history of nature-religions or naturianism; a second stage, initiated by the new moral religions of the sixth century B. C., and their concomitant changes, and marked, in the West particularly, by the definite differentiation and determined conflict of the naturalist and supernaturalist conceptions incipient only in the first stage; and a third stage marked by the victory of a more adequate naturalism in a kosmianism distinguished by verified conceptions of a quantitatively determined (instead of, as primitively, quantitatively undetermined) universal interaction; and by at once nobler and more verifiable ideals than either the earlier supernal, or later supernatural, beings and their abodes.

The above stated law may be thus, perhaps, more tersely, yet with sufficient accuracy, expressed in its three constituent clauses :—

1. In primitive, and still subsisting folk-conceptions of nature, objects, inanimate and animate, are regarded as sentient powers, and the more emotionally impressive objects, and likewise events are conceived as supernal beings, and both sentient powers and supernal beings are conceived to exert on each other quantitatively undetermined influences.

2. The conflict of higher and lower races, which was the main condition of the origin of civilization, determined, also, the origin of intellectual development, of which the process has been in accordance with the general law of differentiation and integration.

3. And three stages may be distinguished in this development : The first, extending from the origin of civilization (8000 B. C. ?) to the sixth century B. C., and marked by the progressive development, in the religions of nature, or naturianism, of the antagonisms latent in the primitive conceptions of sentient powers, and supernal beings ; the second, extending from the sixth century B. C., to the present, and marked especially in western Asia and Europe, where Semitic conceptions have had sway, by the fuller and more definite development of these antagonisms in *supernaturalism and naturalism* ; and a third stage, extending from the end of this transitional age of definite differentiation, and marked by the reintegration of the developed antagonisms of primitive conceptions in a *kosmianism* distinguished by verified conceptions of universal interaction, and verifiable ideals of human attainment.

Thus are, at length, as I submit, verifiably generalized those primitive conceptions of nature which, more or less modified only by the conceptions of culture-religions, still subsist among the majority of mankind ; verifiably generalized, also, those racial and economic conditions of the origin of civilization which were the main conditions likewise of the origin of intellectual development ; and verifiably generalized the three greater stages which are all that seem to be as yet clearly distinguishable in the ten thousand

years of the past, and in the future history of thought. With the general law of evolution discovered by Hegel, in generalizing the categories of Kant, the law of differentiation and integration, the law above stated manifestly agrees. But it is on the three great classes of facts which it generalizes,—the facts as to primitive conceptions, the conditions of development, and intellectual stages—that I rely for the recognition of this law. And I shall but add that, if these classes of facts are duly considered, not the inadequacy only, but the untenability in every respect of Comte's "Law of the Three Periods" must become evident. Thus, for instance, the transitional age,—the age preceding the last age inferable,—regarded with due breadth of view must be dated, as we have seen, from the sixth century (500 B. C.), but with Comte it begins "*au commencement du quatorzième siècle*" (1300 A. D.).

Hitherto I have confined myself to generalizing science rather than to speculative philosophy. But from the very first my chief impulse to research with the aim of discovering the law of Historical Intellectual Development was the conviction that, were there such a law, most philosophical problems would be found to belong to but a certain stage of intellectual development; and further that, were the law of this development discovered, these problems would have their flanks so turned that they would dissolve of themselves, rather than any more need to be solved. See, for instance, the new aspect assumed under the light of the above stated law, by all questions involving the antithesis of natural and supernatural. That law affirms that, as indeed all the most authoritative folk-lorists are agreed, there was positively no such antithesis as that between naturalism and supernaturalism; that it was definitely developed only after the sixth century B. C.; and that the result of the long conflict between these opposed conceptions of the world—the conception of it as a *kosmos* having in itself all its powers, and the conception of it as a creation deriving all its powers from a supernatural personage existing prior to, outside, and independent of, it—appears likely to be the abolition of this antithesis altogether in a more

adequate naturalism. And in view of such historical facts what tiresome logomachies become all such argumentations, or rather argufications, as those, for instance, of Mr. Balfour's "Foundations of Belief."

"To say that all this order in animals and vegetables proceeds ultimately from design is," as Hume pointed out, "begging the question, nor," as he added, "can that great point be ascertained otherwise than by proving, *a priori*, both that order is from its nature inseparably attached to thought, and that it can never of itself or from original, unknown principles belong to matter." But, with the abolition of the antithesis between natural and supernatural, there will go the abolition of that also between matter and mind as independent entities. For, instead of the notion of antagonistic entities, it seems probable that there will be substituted the conception of infinite degrees of such correlative capacities as energy and sentiency—the capacity of doing work. At all events our law affirms that the drift of thought is to the conception of a quantitatively determined universal interaction. And *that* will be found to involve such inherency of design and order in the kosmos itself as was suggested by Hume.

But further, if such a law as I have stated should, indeed, be found verifiable, would not the intellectual history of mankind appear as a sublime though tragic struggle through vicissitudes the most terrible, yet a struggle ever onward to a true world-consciousness? Should, however, this be admitted, then may we not regard this struggle as not so much ours, as the struggle of the kosmos itself to ever-truer self-consciousness? Would not such a view so transform all our ideas of nature and of life as to create a new ideal, a new religion, and a new art no more opposed to, but inspired by, science? In a higher way than even

(1) *Une théorie de l'intelligence pure, indépendance de l'organisme et du mouvement, n'est plus possible aujourd'hui, et bientôt une théorie de l'organisme purement mécanique sans intervention de la conscience sera également insoutenable.*—Janet, *L'Automatique psychologique*, p. 481.

by recognizing “la propre grandeur dans l’extrême petitesse de la base qui lui a servi pour mesurer les cieux,”⁽¹⁾ may not man now console himself for the loss of the false aggrandizement given by theological notions? For if, in beholding the starry day of the universe, we feel ourselves to be but infinitesimal microbes, may we not console ourselves with the thought of our capacity of attaining, as parts of that kosmos, an ever more approximately true world-consciousness, and therewith of becoming ever more duly conscious of its and our infinity and eternity?

(1) Laplace, *Système du Monde*, t. ii. p. 456.



HISTORY AND METHOD OF THE SCIENCE OF RELIGION

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THE Science of Religion is of very recent date. Little more than a quarter of a century ago, Professor Max Müller inaugurated it with the publication, in 1873, of his "Introduction to the Science of Religion." It is, therefore, not surprising if its brief history should reveal some want of unanimity as to the exact method by which the science is to attain its object, or even as to the exact object which a Science of Religion proposes to attain. Still less need it surprise us to find that students are now becoming conscious that the question of method must be studied before any further considerable advance in the science can be expected.

It is the case with all forms of human endeavor that action comes first, and reflection comes afterwards; we first try to do the thing, and subsequently we reflect on the more or less success which has accompanied our various attempts, and strive to learn from the experience we have gained the best way of achieving the work before us. Closer study of the problem and increasing acquaintance with the facts inevitably lead to a more precise statement of the problem, and to methods more closely adapted to the needs of the particular case. Thus, even if there

had been nothing in the general movement of thought during the last quarter of the nineteenth century to affect it, the Science of Religion would but have obeyed the ordinary laws of scientific progress in advancing, or striving to advance, from a less to a more exact conception of its object and methods.

But, as a matter of fact, since the Science of Religion was founded, a considerable revolution has taken place in the general estimate of what can, and what cannot be done, or even attempted by science and scientific method; and the Science of Religion has not escaped the general fate. In 1873, it was to science that the world at large looked for the solution of all problems and for the ultimate explanation of all things. Science on its part was prepared to solve all problems that could be solved, and to pronounce the rest insoluble; to produce an explanation of the universe, and pronounce it ultimate and any further explanation unscientific. In return, science simply required that mankind should give up all forms of thinking, all postulates of thought, except those postulates of science, and those scientific methods, which alone were capable of pronouncing unsolved problems insoluble and of providing ultimate explanations which were not ultimate and which explained nothing. In 1873, therefore, there could be no doubt as to the method and object of a Science of Religion: the method was that of all science; the object to settle finally the truth about religion.

In 1900, things are different. It is proclaimed by men of science, the most devoted to a purely mechanical explanation of the universe, that the object of science is not to explain things at all, but to describe them, to give with, if possible, mathematical exactness, a description of what actually does take place, and the law expressed mathematically, if possible, according to which it takes place. What it all means, when these scientific facts have been established, and these mathematical laws have been formulated; what they all come to; what they have to say to *me*, are questions (it is coming to be recognized) which we may legitimately ask, and legitimately try to answer, though science, by its very definition, is incapable even of discussing them. We may

hope, therefore, to find signs in 1900 that the Science of Religion also entertains rather less ambitious hopes, is seeking for a more definite aim, and modifying its methods to its more purely scientific object.

That the growth of religion was and is a process of evolution, and, as such, is subject to the general laws of evolution, as well as, probably, to special evolutionary laws of its own, was obvious from the beginning. Indeed, almost simultaneously with the appearance of Professor Max Müller's "Introduction to the Science of Religion," another Oxford professor published the work which was destined to remain from that day to this the foundation and the model for all subsequent research from the anthropological side into the origins of religion. That work was Prof. E. B. Tylor's "Primitive Culture." The amount of labor which, then and since, has been spent on the attempt to trace religion back to its origin, is doubtless due to a disinterested and purely scientific desire to discover the actual steps by which, as a matter of fact, religion has become what it is; but the laborers at the task were also undoubtedly inspired by the conviction then firmly cherished and widely proclaimed as a self-evident truth that, only when a thing has been traced to its source, in accordance with the principles of evolution, can it be said to be really "explained" and thoroughly understood.

But the theory of evolution has also had its vicissitudes, its chances and changes, during the last quarter of a century. The enthusiasm with which it was welcomed as promising to afford not only a scientific account of the past history of the world, but also a philosophy, a synthetic philosophy, of the whole universe and all its problems, has given way to a more sober and reflective spirit, which begins to ponder, in the light of its fuller knowledge, on the question whether the very conception of the term "evolution" has as yet received any satisfactory definition,—and, granting that the homogeneous is unstable (which now appears to be a very doubtful proposition), whether "the instability of the homogeneous" really explains, in any satisfactory sense of the word "explanation," anything whatever. The

theory of evolution, which "explains" a thing by reducing it to its lowest terms and by seeing nothing in it but its meanest attributes, may perhaps not have fully grasped the nature of the thing to be explained, and may, therefore, possibly be seeking its origin where its origin does not lie. We shall, therefore, not be surprised if we find that students of the evolution of religion are not so unanimous now as they were twenty-five years ago as to the direction in which to look for the origins of religion, or as to the nature of evolution as presented to them in their own department of inquiry.

The question what it is exactly that we have to hope, or fear, from a purely scientific treatment of religion, is one which, however answered, cannot exempt us from the duty of seeking the truth on this or any less important subject. It is, nevertheless, a question the answer to which necessarily and legitimately influences the direction and the method of our search. At the beginning of our quest, the motive of our inquiry may be vaguely the desire of truth, truth of any kind and as much of it as possible. But we cannot proceed far without some definite object, and the nature of that object will depend partly on the means at our disposal, and partly on the subject-matter of our inquiry. If we propose to confine ourselves to what science can tell us, our choice is thereby limited and confined to the kind of object which science alone can aim at. It is vain to expect from science, or from any other department of thought, what it does not profess to offer; and we shall see more clearly, when we come to trace the brief history of the Science of Religion in detail, that the object at which it has aimed has varied with the varying conception of what science in general is and is not capable of doing. But to these fluctuations, common to all science during the last twenty-five years, we shall have to add those which are due in the Science of Religion to the subject-matter itself. In any department of scientific inquiry the subject-matter, or what the inquirer conceives to be the subject-matter, helps to determine the object and the method of inquiry. In the Science of Religion the object is truth; not truth in general, but the

truth about religion ; and the extent and nature of our investigations will obviously depend, in part, on what we take to be the extent and nature of religion,—on what religion is. Now, on the one hand, we begin with no doubt that we know what religion is, at any rate, in its essentials. On the other hand, it would not be surprising if, as a result of the larger knowledge that came of a scientific study of religions, we should know still better. The surprising thing would be for a Science of Religion to tell us in the end nothing whatever about what religion really is. If, on the other hand, it should modify the conception which it had formed of its subject-matter, it will find that its object also has been correspondingly modified. Indeed, it may find its most fruitful method of inquiry to consist in the constant endeavor to approximate more and more closely to a scientific definition of its own subject-matter, and in the consequent concentration of inquiry upon a more and more precisely defined object.

The different views which different students have held and do hold as to what religion is, what the precise object of a Science of Religion ought to be, what we may and what we may not reasonably expect to learn from science and evolution, and what methods we ought to employ,—all these differences are such as, from the nature of the case, were inevitable, and fortunately inevitable. Every science must to a large extent invent its own methods, determine its own definitions, and formulate its own objects. If it is to do those things with success, its youth should be a period of plasticity, in which it is ready to prove all things, welcome all suggestions, and try all experiments. Nothing could be more unfortunate for it than to fall, in the time of its comparative helplessness, a victim to the dogmatism of ecclesiastic, agnostic, or sceptic. Such has not yet been the fate of the Science of Religion ; still less is it likely to be the case in the future. The healthy differences of opinion, on which the freedom and the future growth of science depend, are, indeed, beginning to manifest themselves more frankly than heretofore. Hitherto the importance of the subject, the need of action, the large amount of work which could be done without raising fundamental questions, and, it is

right to say, the general forbearance of fellow-workers to one another, have all tended to adjourn the discussion of the more difficult and delicate questions until the interests of the science should demand it. If there are signs that that time is approaching, it is because the need of some agreement as to method and definition, is making itself felt. Why the need exists, and what hopes there are of agreement, may perhaps become clear if we sketch the brief, but not uneventful, history of the Science of Religion.

On no subject is there more urgent need of agreement than on the point whether a Science of Religion can be expected ultimately to throw any light on the question whether religion is true or not. The mere fact that a man is prepared to devote some time and thought to the Science of Religion, constitutes a double presumption: first, that he considers the question of religious belief *versus* agnosticism or scepticism as one of importance; next, that he is willing (as not all inquirers are) to listen to what science has to say, if it has anything to say, on the matter. Indeed, we may go further and say that it has been, if not is, a common belief that it is the object of the Science of Religion to settle the question; and that the interest of many in the subject goes just so far as they find that the science confirms their preconceived convictions: any argument that confirms them is scientific, any argument that runs counter to them is "so-called" science or "mere theology," as the case may be.

It is, therefore, some, if but a slight, advance that writers at any rate, if not readers, should be, as they now are, fairly agreed that it is not the object of the Science of Religion to determine whether religion is true or not. This admission, however, does not at all preclude us from hoping that the science will incidentally, though none the less necessarily, throw considerable light on the question; or even lead, though not perhaps designedly, to some final and decisive argument. Whether we consider the object of the science to be to define religion, to distinguish what is religion from what is not, to discriminate the essence from the forms in which it may manifest itself, or to determine the order

in which those forms succeed one another, or the causes of the change of form, or the laws which that perpetual change obeys,—there would in any case seem to be nothing to prevent us from expecting such scientific knowledge, when attained, to contribute something to the settlement of the question of religion *versus* agnosticism. One obvious precaution there is, indeed, which must be taken, unless the science is, for this purpose, to be vitiated from its source: we must take constant care that the object of the Science of Religion shall be always and at all times to discover the truth, and not to confirm our preconceived notions of what religious truth is. We must not allow our scientific investigations to be affected by religious considerations.

“The only object a man of science or an historian can propose to himself is to establish new truths or to criticize propositions or laws which have long been regarded as true but on insufficient or fragile evidence. The historian’s aim ought to be the truth, and his sole preoccupation ought to be to ascertain the exact facts and to determine, with all the precision and objectivity he can, the causal connections which bind them together. Little does it matter, or at least little ought it to matter, to him how the results of his researches may affect this or that religious dogma, or whether they favor the development of any given human emotion, or what obstacles they may offer to prevent it from blossoming.”¹

Whether researches conducted in this strictly scientific spirit will or will not result in conclusions confirmatory of our religious convictions, it is, of course, difficult or impossible to say. Professor Tiele is of the opinion that “genuine science, which seeks nothing but the truth, is a light by which truth is made manifest,” and that “what is good and true, genuine and beautiful,” as we believe religion to be, “need never fear the light.” Indeed, we may expect, according to him “practical benefit” from the scientific investigation of religion: “it may bring to light the superiority of one cult to another; it may have a powerful influ-

(1) M. L. Marillier, *Revue de l'Histoire des Religions*, 1897, Tome xxxvi. No. 3, p. 333.

ence on the purification and development of religion itself; it may, by showing religion to be rooted in man's inmost nature, vindicate its right to exist better than any long philosophical argument."¹

On the other hand, M. Marillier insists that we have no right to assume that the interests of truth and of religion are fundamentally identical, or that in serving the one we are certain to be forwarding the other: "Criticism is neither the foe nor the friend of any religious belief; it will not intentionally coöperate in any attempt to undermine the piety of any soul, but neither is it its function to consolidate or to confirm it; it does not know whether the interests of truth are reconcilable with those of religion; it is not its business to know; the only interest known to it is to know the truth."²

If the truth thus scientifically obtained should, after all, tell in favor of religion, as Professor Tiele believes it does, M. Marillier would doubtless agree that "such testimony is all the more valuable because unsought, unbiassed, and undesigned."³ If, however, the testimony of truth should be against religion, the man of science can have no doubt as to the upshot: *magna est veritas, et praevalabit.*

If science cannot discover truth, there is no use in appealing to it; if it can, we must abide by the appeal. The only question which remains is whether the truths which it is the object of the Science of Religion to discover are of the kind to solve, or help to solve, the problem of religion *versus* agnosticism or scepticism. The affirmative answer to this question is undoubtedly that which seems to be indicated by the general tenor of the brief history of the science. From the very beginning there has been absolute

(1) Prof. C. P. Tiele, *Elements of the Science of Religion*, 1897, vol. i. p. 10.

(2) M. L. Marillier, *l. c.*

(3) Prof. C. P. Tiele, *l. c.*

unanimity in agreeing that the Science of Religion is one of the "comparative" sciences, that it proceeds from and by the comparison of one religion with another. The object of such comparison might be to ascertain the points of likeness and unlikeness between the various religions, and to group the former into one inductive proposition which should describe or define the common features constituting the essence of religion, as distinct from its accidental forms; or the object might be to arrange the various forms compared in the order of their evolution, according to the increasing degree in which they manifested some particular and important characteristic. But whether the primary object was, as in the case of Professor Max Müller's "Introduction to the Science of Religion," to establish a definition; namely, that "religion is a mental faculty or disposition which, independent of, nay, in spite of, sense and reason, enables man to apprehend the Infinite under different names, and under varying disguises"; or whether, as in the case of Professor Tylor's "Primitive Culture," the object was rather to trace the stages by which religion has been evolved from its original germ; in either case it is equally taken for granted that there is a unity underlying the multiplicity of religions and capable of being defined by science; that there is a continuity running through all religions and making it possible to regard them as all phases of one process, all manifestations of one underlying unitary principle.

Now it may be regarded as having been demonstrated by Professor Tylor, and as having been confirmed by subsequent researches that, on the whole, the manifestations of this principle in any community are correlated with the stage of civilization which that particular community happens to have reached; that "as a man is, so will his god be"; that the gods of savages are little better than savages; and that it is in the higher stages of civilization that the higher conceptions of deity appear. It may also be accepted as a fact of science that the nations now most highly civilized have risen to that height from an early stage of culture comparable to that of the lowest savages known to us.

It is, therefore, in the religion of such savages that science looks to find the nearest analogy to the religious beliefs of our early, if not earliest, ancestors.

As the strength of a chain is that of its weakest link ; and as the unity of the religious principle throughout the multiplicity of its forms, and the continuity of religion, throughout the whole length of its evolution, are unanimously assumed by all students of the Science of Religion ; it follows that the whole of religion, in virtue of its unity and continuity, must stand or fall together.

The question, then, is what grounds or evidence had primitive man, in his primitive culture, for his religious beliefs, the germs of all subsequent religion ? Professor Tylor holds that all things, even things which we now know to be inanimate, were considered by primitive man, as by the present-day savage, to be animated by spirits, if they actively affected him or his fortunes in any way. Mr. Herbert Spencer, succeeding Professor Tylor, teaches rather that the forces of nature were supposed to be directed by the ghosts of departed men. Mr. Spencer's doctrine on this point is not generally accepted by students, but that does not matter for our present purpose. Professor Tylor, Mr. Spencer, and most students of the Science of Religion are agreed that the gods of the higher religions have been evolved out of the spirits (whether ghosts or not) of the lower religions ; and that the belief in both ghosts and spirits was produced by the savage's experience of dreams and trances. The savage mistakes the forms he sees in the visions of the night for the real persons he dreams of ; he believes that the distant places he dreams of have been visited by him, if not in the body, then in "the spirit."

Here, then, we have the germ of all religion, in the belief in spirits, a belief which is itself based on what we know to be hallucination. Here, too, we have the light which some readers of "Primitive Culture" and of "The Principles of Sociology" hold that the Science of Religion throws on the question as to the truth of religion : religion is a survival or an elaboration, of

savage beliefs, which to savage logic were reasonable enough but are exploded by the touch of modern science.

To this, of course, it might be replied either that this belief in spirits, "animism," is not religion, or that, so far as it is fatal to the truth of religion it is not scientific fact. Either rejoinder entails consequences important for the Science of Religion; we shall, therefore, consider both, and begin with the latter.

One great service which has been rendered to the cause of practical religion by Mr. Herbert Spencer's theory of the Unknowable, and by Professor Huxley's doctrine of agnosticism, is that they have in effect ruled dogmatic atheism out of court: it is, thanks to them, pretty generally understood that no scientific method, whether of observation or of experiment, is capable of demonstrating that there is no god. If the facts of science are to be made to yield either that proposition or its contradictory, it will only be by a considerable admixture of argument which is unscientific, and which the man of science will consequently disregard. From this point of view, it becomes obvious that the Science of Religion, as long as it continues to be purely scientific, cannot possibly throw any light on the question as to the truth of religion: it must, like all other science, leave that alone forever; and if "animism" or any other theory of the evolution of religion is supposed to result in a necessary demonstration of the falsity of religion, it can only do so because some unscientific step has slipped into the argument somewhere. In fine, all science is essentially agnostic; and the Science of Religion, accordingly, not only begins by not knowing whether religion is true, but, if it continues to be scientific, must end by not knowing; that is to say, the sort of facts which it is the business of the Science of Religion to ascertain and establish, must be facts which are equally reconcilable with either the truth or the falsity of religion.

Lest the last statement should be considered paradoxical, it is only necessary to point out that there are a great many things which we may say truly about religion without in any way com-

mitting ourselves to the statement that religion is or is not true. If science in general can establish many facts without the hypothesis either of God's existence or of his non-existence, so, too, can the Science of Religion. The social or political effects of this or that form of religion, the correlation of certain forms of religion with certain stages of social evolution, the chronological succession, and the geographical distribution of the various forms, the extent to which all tribes and nations have a religious belief, the nature of the belief which they are supposed to possess, the similarity or dissimilarity of their myths and rites, their doctrine and ritual, the meaning and the changes of meaning in such ritual and mythology, the relation of religion to morality—all are topics which can be discussed without touching on the question whether religious belief is truth or hallucination. Indeed, we may go further and say that if they are to be discussed objectively or scientifically, the discussion must terminate in propositions which are scientifically true, but which leave the question whether religion is truth or hallucination as open as they found it.

The question then arises, how best to secure to the Science of Religion this strictly scientific character. It is obviously impossible for us to foresee and provide against all the dangers which may hereafter threaten to contaminate the scientific purity of our science. But there are certain dangers which its history has already revealed, and which we may consider with especial reference rather to their bearing upon the method of our science than to their effects upon the interests of religion.

It is obvious that great danger may lurk in the definition of religion that we adopt: it is easy and tempting to define it in such a way as to imply either that religion is or is not true, and to exhibit the corresponding conclusion as a scientific inference when it is really only the development of a non-scientific definition which begged the question to begin with. We have already seen that to some of Dr. Tylor's readers his theory of animism, or rather his definition of religion as "a belief in spiritual beings" seems necessarily to involve the falsity of religious belief: if,—

such is their argument, not Dr. Tylor's,—religion is in its essence nothing more than the animistic belief in spiritual beings, it is nothing more than an hallucination. If religion is something else than hallucination, then the animistic state of mind, which Dr Tylor has described and accounted for, and which Mr. Herbert. Spencer says never is or can be found amongst savages, is not religion. On the other hand, such a definition of religion as that it is love of a god, conceived as a personal being with whom the worshipper communes in his heart, seems to M. Marillier one to which no one with a proper sense of what critical method requires can possibly subscribe.¹

So great are the dangers to science of a preconceived opinion as to the nature of religion and of a question-begging definition, that Professor Tiele² thinks the best precaution is to begin without any definition at all: "we shall not begin," he says, "as is so often done, by formulating a preconceived ideal of religion; if we attempted to do so, we should move in a circle. What religion is in its essence can only be ascertained as the result of our whole investigation." Whether this precaution, as simple as effective, is possible, is a question to which we shall return in a moment; for the moment we note that, according to Professor Tiele, to define religion is ultimately part of the function and within the competence of the Science of Religion. It seems doubtful, however, whether Professor Tiele's opinion is accepted by all students, e. g., by M. Marillier. Criticizing the late Professor Robertson Smith's conception of religion, M. Marillier quotes the leading features of his definition, and, simply remarking that "they are postulates which it is open to everybody either to accept or to reject," goes on to express his own personal impression that there is not that distinction between religious and magical rites, which is essential to Robertson Smith's

(1) M. Marillier, *l. c.*, p. 339.

(2) *L. c.*, p. 4.

conception of religion.¹ If, then, the definition of religion is a mere matter of personal impressions, to be accepted or rejected by every one according as he finds them sympathetic or not, it is obvious that definition is a matter which involves extra-scientific considerations, and which science cannot take up either at the start or the finish. When, too, we reflect upon the extraordinarily large number of religious sects which are registered in any civilized country, however small, which in its census takes account of the religious beliefs professed by its inhabitants; and when we recollect that each sect is divided from the one nearest to it by some difference which is essential to that particular form of religion, it does seem as though a definition which would include everything essential and exclude everything not essential to religion, is a task not so much for science as for omniscience.

Shall we, then, renounce all hope not only of beginning but even of ending with a definition? Alas! in that case we must renounce the Science of Religion altogether. It is absolutely impossible to take one step in the science, or even to talk about the Science of Religion, without referring to a definition expressed or understood. Professor Tiele has no sooner finished the declaration of his intention not to begin, as other people do, with a definition, than in the very next sentence he defines the sense in which he is going to use the word: "by religion we mean for the present nothing different from what is generally understood by that term,—that is to say, the aggregate of all those phenomena which are invariably termed religious." In other words, he begins with an implied definition, only it is not a scientific definition but the vague, ill-defined (not undefined) popular conception. This we believe to be the proper scientific method of procedure, at least at a certain stage. In the first place, it is the method which all the natural sciences have followed: they have

(1) M. L. Marillier, *Revue de l'Histoire des Religions*, xxxvi 2. p. 253.

all started in the first instance from the popular conception of their subject-matter, and have subsequently refined it into a scientific definition. In the next place, it is the only method which can possibly be followed in science; for, granting that it is only from religious phenomena that we can ascertain what religion is, we must have some conception (and, therefore, a potential definition) of what phenomena are religious, before we can use them as materials for a definition. But though it may be inevitable that in the early days of a science we should start from the popular conception, e. g., of what are living things, that is no reason why, when the popular conception has been corrected, restricted here and extended there, by science, we should continue to start from the popular (and now admittedly incorrect) denotation, rather than from the scientific. The current scientific definition of one period may yield afterwards to a more exact definition, which may itself be only a nearer approximation to the actual facts, and not a final statement of the truth. But this gradual approximation is a mark of scientific progress and is one part of the function of every science.

We conclude, then, that there is nothing unscientific either in beginning with a definition or in ending with one; that the danger of misleading definitions constitutes no sufficient reason for forbidding the attempt to define; and that, since phenomena which at one stage of the science, are considered religious may at a subsequent period be excluded as non-religious, it is not from the phenomena alone that our definition can be drawn. On what method, then, is science to proceed to obtain a definition of religion? The best way to answer the question will be to inquire what method or methods have been employed by the Science of Religion.

Originating, as the Science of Religion happened to do, at a time when evolution was "in the air," it fell at once under the dominion of the current conviction that nothing could be properly or thoroughly understood until it had been traced to its

origin; and that, when it had thus been tracked, its real and essential nature would become manifest. The origin of religion, therefore, became a point of special interest for investigation. There are, indeed, two problems covered by the phrase: one is to discover the earliest form, the original form, of religion; the other is to discover the antecedent circumstances or conditions out of which that original form was evolved. Thus, when we have solved the first problem and have proved scientifically that the earliest or original form of religion is, let us say, "belief in spiritual beings," there remains the perfectly distinct problem, what causes led man, having no belief in spiritual beings, to form or entertain that belief? Mr. Herbert Spencer says ghosts; Dr. Tylor says visions and dreams. An older answer says a primitive revelation. The older answer, it may be said, is a hypothesis. So are both the modern answers. And though dreams and ghosts are commoner, if not better established, facts than divine revelations, a primitive revelation would be a competent cause of religious belief, whereas it is more doubtful whether ghosts and dreams do produce religion.

But not only are the answers hypothetical; not only are they hypotheses invented to bolster up another hypothesis; the problem itself is unscientific. The problem assumes that there was a period when man had no religion, not even "belief in spiritual beings." That assumption may be probable, or it may be improbable,—the difficulty or impossibility of discovering any tribe however low that has no religion tells so far against it,—but, probable or improbable, it is a conjecture as to what may have happened in the irrecoverable past, not a fact scientifically demonstrated or scientifically demonstrable. Consequently, the hypotheses of ghosts and dreams, however probable we may consider them on general or philosophical grounds to be, are not scientific facts; nor are they hypotheses designed to account for any facts known to science.

As philosophical or metaphysical conjectures as to what may or must have been the source of religion, animism and the ghost-

theory may have a very high value. In the Science of Religion they can no more find a place than can the theory of a primitive revelation. Science builds upon ascertained facts not upon conjectures which may (or may not) be adequate to account for what is not known ever to have existed. Whether primitive man was at any period of his primitivity without belief in spiritual beings is for science an open question at present. Consequently no theory or conjecture which requires us to assume that the question has been answered can be regarded as scientifically proved, still less can we take it as one of the postulates on which the whole Science of Religion is to be built.

Thus, even though a solution of the second of the two problems connected with the origin of religion should lead to the most satisfactory definition of what religion really is, the solution and its corresponding definition at present lie beyond the sphere of the Science of Religion. We must, therefore, consider the attempts which have been made to ascertain the nature of the earliest or original form of religion, and see whether they lead to a definition satisfactory, if not for philosophical, for scientific purposes.

There are certain cults and creeds, doctrines and rituals, myths and rites, songs and ceremonies, to be found amongst the various nations and tribes of men, which are provisionally assumed by the Science of Religion to be religious, to be the expression in word and deed, of some state of mind,—belief, emotion, conviction, desire, aspiration or dread, hope or fear,—the nature of which, in its earliest or original manifestations, we desire to ascertain and define. For good scientific reasons we hold that those myths and rites are most likely to be primitive which are correlated with the lowest stages of human culture. It was on myth rather than on ritual that there was a strong tendency in the Science of Religion to concentrate itself at first. For this the chief reasons were the importance to modern religions of creeds, to modern minds of an intellectual basis for religion, the

fascinations of myths and fairy-tales, the possibilities of Comparative Mythology. The success with which the comparative method had been applied to philology, and the literary power with which Professor Max Müller set forth the results of the Solar Mythology raised strong hopes that by the aid of Comparative Mythology the Science of Religion would be enabled to penetrate the meaning and origin of the myths of the Aryan and all other peoples. In point of fact the meaning of many myths which, when told of the various gods as detached personalities, were unintelligible, became full of meaning when the deities were seen to be personifications of the Sun, the Dawn, or the Storm. This method of interpreting Aryan Mythology, however, yielded scientific results no further than as Comparative Philology guaranteed that the names of the deities, figuring in the myths, were names of the Sun, Dawn, or other nature-powers. Unfortunately there were and are not more than half a dozen such names; and many of the myths associated with them probably originated elsewhere and have come only accidentally to be attached to these particular names. As a question of method, too, it is plain that the comparative method, if it is to be comparative and to deal with the whole problem, must be extended to the whole field of all mythology and not be confined to the Aryan area alone; still less can the "disease of language," to which Professor Max Müller would reduce mythology, be the key to myths which occur amongst nations where that specifically Aryan disease is not to be found. Those truths were repeatedly and pointedly driven home by Mr. Andrew Lang, whose services, however, were not confined to the merely negative work of exposing and destroying the often extravagant and arbitrary speculations of the Solar Mythologists. He established on a scientific basis the fact that Greek Mythology testifies indubitably to a period when the Greeks or their forefathers were on no higher level, intellectually and morally than that of many existing savages. Thus, in the quest after the meaning and origin of myths we are once more brought back to that lowest stage of human culture

with which science expects to find the earliest manifestations of religion correlated.

Generally speaking we may say that myths have a practical object, though some may be pure exercises of the imagination, tales told for the pleasure they give in the telling and the hearing, and are designed to explain anything which the savage thinks requires explanation, e. g., why the sun goes across the sky, why the tribe observes a certain custom, why an animal is marked in a certain way, why should people ever die, how the world began. The mythological answer to such questions always is: because somebody once did so and so. Thus from mythology we may learn what the savage thinks as to the power and temper, the ways and customs, of the beings who figure in his myths; and if religion were a matter purely of the speculative intellect, or if its manifestations were confined exclusively to words, to myths, to doctrines, and creeds, then mythology might receive the whole attention of the Science of Religion. But religion expresses itself in acts as well as in words; rites and ceremonies as well as myths are amongst its manifestations. And, although in this our present attempt to get at the inner meaning of religion through its outward and visible signs, we wish to be as objective as possible, to be as submissive as possible to the facts (i. e., to the rites and myths and other forms provisionally accepted as "religious"), to trust as much as possible to mythology, and to venture on psychology as little as possible; still it seems inevitable and not unwarranted to draw on psychology so far as to infer that if a man and a savage deliberately does something, religious or non-religious, he is moved by some emotion and acts with some purpose. The savage, therefore, in performing his religious rites and ceremonies experiences some emotion and acts with some object; and the problem for the Science of Religion, when, as originally, it sought to reach a definition of religion from the morphological rather than the psychological side, was: from the rites of the savage to infer the motive and emotion which actuated him.

The rites and ceremonies which at this stage of the Science of Religion attracted most attention, and which probably are of the greatest importance for the history of religion, were those associated with the offering of gifts and sacrifices. Now, presents may be made from a variety of motives,—as a mark of respect or expression of esteem, from pure affection, in the hope of a return, to propitiate an offended person, to curry favor with a person feared, or because it is usual or the proper thing to make presents on certain occasions. It is, however, certain that the savage often lives in considerable terror of the spiritual beings by whom he believes himself to be surrounded; and, if we assume that the savage, as the lowest of men, must be actuated only by the lowest of passions, we shall have no difficulty in accepting Professor Tylor's psychological analysis of the state of mind which marked the original "belief in spiritual beings," an analysis which was subsequently expressed with much perspicuity by Mr. Grant Allen, (who, however, adapted it to the ghost-theory of spiritual beings), thus: "the basis or core of worship is surely offering—that is to say, the propitiation of the ghost by just such gifts of food, drink, slaves, or women, as the savage would naturally make to a living chief with whom he desired to curry favor."¹

The gift-theory of sacrifice and the fear-theory of religion may be said to have reigned unchallenged in the Science of Religion, as far as the anthropological side of it is concerned, until the almost simultaneous appearance of two most remarkable and important books from the University of Cambridge (England): the late Professor Robertson Smith's "Religion of the Semites," and Dr. J. G. Frazer's "Golden Bough."

The psychological analysis which reduces the motives for offering sacrifices to the one motive of fear, or the desire of currying favor, needed the fulfilment of two conditions before it could be considered to be scientifically proven. The first was that it should account for all the facts; the second, that it should

(1) Grant Allen, *The Attis*, p. 93.

be the only one capable of accounting for them all. In place of a scientific proof of the latter proposition, however, all we got was a loose assumption that the lowest motives and passions alone actuate the lowest savages. The assumption is probably erroneous: just as the savage, if you grant his premises, is remarkably and sometimes ridiculously logical in the conclusions he draws from them and the action he takes on them, so, for his circumstances, he displays considerable kindness and even generosity. This consideration, however, amounts only to a possibility that some higher motive than fear may be the principle which manifests itself in the making of gifts and of sacrifices. The scientific demonstration that there is a large and important class of sacrifices for which the fear-theory will not account, and that the fear-theory consequently is not an adequate explanation of the facts to be accounted for, was the work of Robertson Smith.

The most striking and probably the most important class of sacrifices consists in the offering of food, in the enjoyment of which not only the deity but his worshippers also jointly participate. Robertson Smith was the first writer to appreciate the significance, for the Science of Religion, of these sacramental meals, and to demonstrate, as Dr. Tylor puts it, "the immense influence of sacrificial feasts as means of binding societies of worshippers together and to their common divinity."¹ In a word the motive of these sacrifices was not fear but the worshipper's desire for communion with his god; and desire for communion implies some degree of attachment, affection, and love.

How completely Robertson Smith broke off from Dr. Tylor's fear-theory of religion is shown by his own words:—"However true it is that savage man feels himself to be environed by innumerable dangers which he does not understand, and so person-

(1) Prof. E. B. Tylor, *Journal of the Anthropological Institute*, vol. i. (N. S.) p. 145.

ifies as invisible or mysterious enemies of more than human power, it is not true that the attempt to appease these powers is the foundation of religion. From the earliest times, religion, as distinct from magic or sorcery, addresses itself to kindred and friendly beings, who may, indeed, be angry with their people for a time, but are always placable except to the enemies of their worshippers or to renegade members of the community. It is not with a vague fear of unknown powers, but with a loving reverence for known gods who are knit to their worshippers by strong bonds of kinship, that religion in the only true sense of the word begins.”¹

There are several points in this passage which will claim our attention. First, it implies that there is another way of reaching the definition of religion besides the method we are now engaged in examining,—that besides the method which seeks to extract our conception of religion from the study of religious phenomena, there is another by means of which we shall be able to determine what phenomena are religious. This is a point to which we shall have to return.

The next is that the passage does not definitely assert that man was or must have been religious from the first, but that there are certain essentials to religion without which religion never could at any time have existed. As an abstract proposition, it seems undeniable that there are certain things essential,—what those things are, is the question which it is the business of a definition to state. The third point, to which we shall have to return, is that magic and sorcery, as they have a different name to distinguish them from religion, so they and the practices in which they are expressed imply a different mental state from the religious.

We can now return to the history of the attempt to obtain a definition of religion from religious rites, to infer from the outward

(1) Robertson Smith, *Religion of the Semites*, p. 55.

practice the inner motives, emotions, and conception. It will not now be doubted by any student of the Science of Religion that "loving reverence for known gods" is religious, i. e., is expressed in certain sacrificial and sacramental rites, or that these rites are of immense importance in the history of religion. The question is whether these rites accompany man as far back as we can trace him, or whether in his evolution they were preceded by the practices, magical or otherwise, which are the outcome of a vague terror of unknown and hostile powers. There are certain reasons, indicated by Robertson Smith, for affirming the former. The gift-theory of sacrifice, according to which the sacrificed animal was a present to propitiate or curry favor with a spiritual being and so avert his hostility, might or may be true to some extent where private property exists, but will not apply to those earliest stages of social evolution in which the conception of private property has not yet arisen. Thus for primitive man the communion-theory of sacrifice is the more probable.

With regard to offerings which do not take the form of food, such as the articles dropped into sacred wells, the raiment hung upon sacred trees, the nails driven into images or tree-trunks, it was Mr. E. S. Hartland who first demonstrated, scientifically and with equal acumen and erudition, in his "Legend of Perseus," that they, too, are not presents or bribes, being as a rule of no commercial value, but means or media by which the worshipper, to whom they belonged and of whose personality they are regarded by the savage as extensions, places himself in permanent contact and communion with the deity. Mr. Hartland's investigation is a signal instance of the success with which, by means of a sufficiently wide induction, science can recover the original meaning and inner significance of a religious practice.

We have, however, yet to mention one line of argument by which the late Robertson Smith, with a power of scientific divination amounting, as later discoveries have shown, to genius, sought to show that the sacrificial and sacramental feast has its roots in the lowest stage of social structure known to us. There

are three features in these feasts for which the gift and fear-theory fail to account, and on which Robertson Smith seized as indicating the stage of social evolution with which they were originally correlated. First, these feasts bind the worshippers together and to their common deity. Next, they imply that the deity is akin to his people. Third, the animal which furnishes forth the sacramental meal is often an animal specially sacred to the deity. Now if the kinship of the deity to his worshippers were the only fact that required explanation, it would be amply accounted for by the common belief amongst savages that the joint participation in any meal constitutes an actually physical kinship between the participants,—hence, the stranger who eats of a man's salt becomes for the moment a member of his kin, and as such becomes entitled to aid and protection. Thus joint participation in a common meal would renew, as often as it took place, the bond of union between worshipper and deity. But, further, the animal is sacred to the god; and not only in many countries are the gods represented in animal form, not only in many countries are animals worshipped as gods, but in those countries where the sacrificial and sacramental feasts are or were observed, there are plain indications in many cases that the animal sacred to the god was originally the god himself. Thus this meal is distinguished from any other meal which might renew the bond of kinship between worshipper and deity by a peculiarly sacrosanct and sacramental character; and this distinguishing characteristic is one which by its very nature intimates that it is a survival from the very primitive circle of ideas in which the kinship of man with animals is taken for granted, and animals were commonly worshipped as gods.

Thus we have a kindred community worshipping a deity, who is specially *their* god, and who, though in the patriarchal stage of society distinct from the species of animal which furnished the sacramental meal, was at an earlier stage incarnate in that species. If, now, we ask whether there is any form of social structure lower than the patriarchal organization of society and

belonging to an earlier stage of social evolution, the reply is that there is, and, what is more, that in it, too, there is precisely that intimate connection between one particular species of sacred animal and one particular group of human kinsmen which is required to account for the later form of worship. Amongst the most primitive of savages known to us, the religious and the social structure of the community coincide in Totemism. The totem is some, any, species of animal (or plant, etc.), sacred to a particular circle of worshippers, who are akin to each other (and forbidden to marry one another), because they belong to that particular totem. They may belong to it because it was the totem of one or other of their parents (necessarily not of both) or for some other reason. Further, as in patriarchal and pastoral times, it was unlawful to eat the sacred animal as common food, so the totem-animal is forbidden food to the totem clan; as the followers of Odysseus suffered divine punishments for unlawfully eating the sacred cattle of the sun, so the Red Indian or the Australian black-fellow who should eat of his totem-animal unlawfully, would be visited by supernatural vengeance. But, unfortunately, no direct evidence was forthcoming, in Robertson Smith's time, to show that the Red Indian or native Australian ever sacrificed his totem-animal for religious purposes: the "totem-sacrament," as it has since been called, remained a conjecture, and it was still open to every student to believe or not believe that in the lowest stage of primitive culture known to us, even the rudest and grossest form of religion was the outward manifestation of man's inner yearning for communion with his god.

To some,—amongst them the present writer,¹—Robertson Smith's conjecture of the totem-sacrament seemed to be clearly and imperatively demanded by the facts of the case and to afford the clue to the evolution of religion. The objections to this

(1) F. B. Jevons, *An Introduction to the History of Religion*, 1896.

view, on the other hand, were set forth in a series of profound and powerful articles by M. Marillier :¹ in the absence of direct evidence it was the business of upholders of the totem-sacrament to show on other grounds that totemism was a necessary stage in the evolution of religion,—a stage through which all religions must have passed ; and this, according to M. Marillier, had not been done,—indeed, thanks to the “plurality of causes,” it was possible to point to many other sources from which the effects, supposed to be caused by the totem-sacrament, might very well have flowed. In the meantime, it was the business of science to confine itself to facts, not build on gratuitous hypotheses. The facts were that the sacramental conception of religion and the desire for communion with the deity were absolutely unknown in the very stage of culture (the totemistic) in which they were supposed to have originated and ought to have been most frequent : those who allowed themselves, in the true spirit of science, to be guided by facts and not by conjectures, which every one might accept or reject as he liked, would hold that the origin of the sacramental feast must be sought in some other and later stage than that of totemism.

In the meantime, whilst M. Marillier was writing, and shortly after the appearance of his last article, Messrs. Spencer and Gillen were sending to press a work,² containing the results of their personal investigations amongst certain of the native tribes of Australia. This work was to set at rest the question as to the totem-sacrament and to show that science does not live by facts alone, but by hypotheses also, when they proceed from a genius such as that of Robertson Smith. Though it survives in but an etiolated form amongst the native tribes of Central Australia, the existence of the totem-sacrament is now a demonstrated fact of

(1) *Revue de l'Histoire des Religions*, 1897 and 1898.

(2) B. Spencer and F. J. Gillen, *The Native Tribes of Central Australia*, 1899.

science ; and the hypotheses designed to prove it an improbable and superfluous supposition, invented to support a preconceived definition of religion, have themselves become somewhat gratuitous.

Students approaching the Science of Religion from the anthropological side have been, as we have seen, anxious to work back by means of the Comparative Method and in accordance with the principles of evolution, to the earliest and most primitive of the outward manifestations of religion in order to ascertain what religion on its inner side really is. In the *a priori* assumption that primitive man must have lived in perpetual fear of the supernatural forces by which he was surrounded, sacrifice was interpreted as an expression of that fear, as the making of gifts to propitiate spiritual beings who were necessarily hostile to man. The first blow against the fear and gift-theory was dealt, as we have seen, from Cambridge in the "Religion of the Semites"; and the earliest and most primitive form of sacrifice known as yet to science is now that which is preliminary and essential to the sacramental feast. The second blow was also dealt, almost simultaneously, from the same quarter by the publication of the "Golden Bough."

Dr. Frazer, so far from falling in with the then current notion that man originally lived in a state of abject terror of the forces around him, was led by his research into primitive rites and practices,—a research probably unparalleled for its range and profundity,—to a directly opposite conclusion. The practices which from their wide distribution amongst the lowest races seem to him to have a claim to be considered primitive were such as implied the tacit conviction that man had it in his power to control the forces of nature. Some of these practices, e. g., those known under the name of "sympathetic magic," or mimetic magic, are such as do not necessarily imply any belief in the existence of "spiritual beings," and might perfectly well have been known and practiced by men who had not even that rudimentary element of religious belief. Others, e. g., the annual

expulsion of evil spirits, literally *vi et armis*, by cutting and hacking the air with swords and knives, do imply the existence of spiritual beings, but also imply that man may prove himself stronger than they and can use constraint and coercion upon them. Finally, there are men who are personally endowed or who become invested with supernatural powers, which may be such as those exercised by witches or "rain-makers," or may be such that the possessor is regarded by his fellow-tribesmen, and even by himself, as a god.

Dr. Frazer's view is that man began with magic; to primitive man in his primitive ignorance the attempt to control the powers of the cosmos, natural or supernatural, "scarce seemed a dream"—on the contrary, it appeared perfectly feasible and businesslike, and was regularly and systematically conducted by means of a whole apparatus of magic and spells, gradually evolved and organized for the practical purposes of life. It was only length of time and sad experience that slowly forced on man the conviction that the powers he had to deal with were beyond his strength to control and constrain; and that in default of ability to coerce them he must endeavor to get his way with them by means of prayer and supplication, sacrifice and offerings. The rites and ceremonies on which he had formerly relied did not, however, cease to be. To some extent, being based on observation of nature, and seeking to produce natural effects by natural means, they contained within themselves the germ of natural science and were destined to enable man really to control nature by obeying her. To some extent, again, so far as they were felt to be inconsistent with the new attitude of supplication, and to be dangerous rivals to the methods of the priest, they were proclaimed impious and nefarious. But to a considerable extent they survived and were incorporated in the ritual and doctrine of the new form of religion; and in the sacrifice of the man-god, representing the spirit of vegetation, Dr. Frazer sees a ritual, at once magical and religious, which had for its object the transference of the spirit to a new and vigorous body, ere it should share

in the decay of its old tabernacle, or even at death escape altogether from the control of its worshippers, who desired to retain its presence and direct its actions for their own behoof and benefit.

Theorists of the type to which Dr. Frazer belongs raise various questions as to method, on which it behooves the Science of Religion to take some decided line. The science starts by accepting, provisionally, as the sphere of its operations and the subject-matter of its investigations those phenomena which are ordinarily regarded as religious, on the ground that it is only from religious phenomena, only from the absolute, objective facts, that we can ascertain, scientifically, what religion is. In the course of its regress to the beginnings of religion, it finds itself confronted and brought into more and more close contact with certain phenomena which are ordinarily termed magic, and are so styled by scientific investigators also. Now, the distinction, which is drawn in common language and by ordinary thought, between magic or religion, may either prove in the long run to be one which science is bound ultimately to reject, or it may be a fundamental distinction of things different in kind which the Science of Religion will finally confirm and adopt. In the meantime, until the distinction is admitted by a general or universal consensus of savants to be one which has been banished from science, the more scientific course of procedure would seem to be to retain it, on the ground that science provisionally adopts the popular grouping of certain phenomena as religious and certain phenomena as magical, until it is in a position to introduce a more scientific method of classification and division. From this point of view, M. Marillier, for instance, takes up a wholly unscientific position when he represents Robertson Smith's acceptance of the distinction to be the introduction of a postulate with which science has and can have nothing to do. It is M. Marillier himself who, by postulating the absence of any difference between magic and religion, is unconsciously and unintentionally vitiating the course of scientific inquiry: the result of

that inquiry may, indeed, eventually be to prove that M. Marillier is right in believing that there is no difference; but the inquiry, if it is to carry conviction, must not move in a circle, begin with a *petitio principii*, or start by assuming as a scientific truth that which it wishes to prove by science to be true.

Taking, then, the distinction between magic and religion as one popularly understood and temporarily convenient, accepting it as a working hypothesis, as long as it will work, we have no difficulty in seeing that it is part of the business of the Science of Religion to discover the relations between religion and magic. To some, the result of such an investigation may seem *a priori* on general scientific grounds, to be a foregone conclusion: the law of continuity is based on such a wide induction that we may safely employ the deductive method and be sure that, though magic and religion may, at first sight, appear vastly different things, the difference even between these two species is not a difference of origin, but will be accounted for by the discovery of numerous intermediate forms shading off imperceptibly into one another and carrying us without a break from the one extreme to the other. In what we take to be the most primitive stages of human culture, it may be that we shall find, as M. Marillier seems to think, only those intermediate forms, with regard to which we can hardly say whether they are magic or religion, but only that they may come to be either. Or, on the other hand, it may be that acquaintance with the actual, objective facts will eventually assign the priority in time to magic, in which case I am not sure whether we shall be expected to infer that religion is evolved out of magic, i. e., out of something disparate and discontinuous with religion; or to join the Rev. T. Wilton Davies[†] in regarding magic as a lower form of religion, in which case we shall be able to define religion, I suppose, as a superior kind of magic.

On *a priori* grounds, however, it may seem to others that the Science of Religion has closer analogies with biology; in the

(1) *Magic, Divination and Demonology.*

latter science we may compare various forms of life, and trace back the more complex to the less, and the less complex to simpler forms still; but at the end, when we come to the simplest cell or merest speck of protoplasm, it is still life with which we are dealing. Science knows no intermediate forms between living and non-living matter, and finds no impossibility or even difficulty in distinguishing between the two. So, too, it may be that having compared and ordered all the various forms of religious life, science will at the end find that it is with religion that it is dealing still, and that between magic and religion there are no intermediate forms.

[TO BE CONTINUED.]



THE IRON AND STEEL INDUSTRY:
AN INTROSPECT

H. F. J. PORTER, *Bethlehem.*



IN the art gallery of the home, in Philadelphia, of the late Joseph Harrison, Jr., hangs a large oil painting by the German artist Schussele, entitled "King Solomon and the Iron Worker," in which is portrayed an imaginary scene at a feast supposed to have been given by King Solomon to the chief artisans who had taken part in the construction of his temple. At the right of the throne is shown the seat of honor, which the king had announced would be reserved for the one who, as those present should decide, was the master workman of them all. To the surprise of the assembling guests, this seat is found to have been already preempted by a swarthy laborer, who is a stranger to those to whom Solomon appeals for information regarding him. The king is about to order the guards to remove the unbidden guest, when the latter asserts that he has come in response to the general invitation extended to the workmen, and asks those who had just denounced him, who made the tools and instruments with which they had respectively cut the stone, hewn the timbers, fashioned the gold and silver, and carved the ivory which together composed the structure and adornment of the edifice. They one and all declare that "the Blacksmith" had supplied the means by which their work had been accomplished. Whereupon the repudiated guest announces that he is

the Blacksmith, and that by the rules of the contest he is entitled to the chair in which he is seated, for all the other claimants have acknowledged that without his work first, theirs could not have been performed. Solomon at once recognizes the cogency of his argument and awards the prize to him as his just due.

This legendary event is peculiarly typical of the position which the iron and steel industry has held among all others from the dawn of civilization to the present day. The important part which it fills in every enterprise is hardly recognized by those who are engaged in other and dissimilar industries, until some accident to their machinery, or a dearth in the iron market of some supply needed in the manufacture of their product, brings them to a realization of their absolute dependence upon it.

When we consider what this industry has done for us in the past, it would scarcely seem necessary, at this late day, for the iron master to come forward to state his case. Yet so often is the result of his labor the skeleton on which others build, or the means by which others attain their ends,—in both of which cases it does not appear in evidence,—and so prone is human nature to vaunt itself on all occasions, and in calling attention to its own excellence, to claim credit for the whole when this is due in part only, that unless the iron master keeps reiterating his claim for recognition, his standing among his fellows would soon be forgotten.

Thus Sir Roberts-Austin, President of the Iron and Steel Institute of Great Britain, in his annual address for 1899, after reviewing the development which had taken place in all directions during the nineteenth century, and remarking upon the predominating influence exerted upon every industry by the one of which he, by virtue of his position, is the representative exponent, claims that “hardly a step of progress, or an incident of our civilization has not in one way or another been influenced by it,” and that “without any doubt it is the greatest industry in all history.”

What do we not owe to the steam engine, a product of the forge and foundry of the present century? The stationary engine supplies power by which our food, clothes, and dwellings

are provided, and our knowledge disseminated through the printing press.

The locomotive and marine engines furnish us with means of physical transportation on land and sea respectively, and our thoughts and words are carried through space on wires which the rolling mill has produced.

Water, our only source of power other than steam, owes its potential also to this industry. Dr. Coleman Sellers, Chief Engineer of the great electric generating water power plant at Niagara Falls, stated at a meeting of the American Society of Mechanical Engineers held in that city in 1898, that had it not been for the great hydraulic press at the forge of the Bethlehem Steel Company at South Bethlehem, Pa., the nickel steel field rings of the electric generators in his power plant could not have been made. In other words, without the work of the forgerman first, that of the electrical engineers could not have been performed, and the great industries dependent upon that source of power for their electricity would not have been possible under the conditions that would have otherwise existed.

History shows that mankind has been engaged in a continued struggle for existence against wild beasts, and in mutual warfare; and as in early times the sword and other hand weapons, together with the shield and helmet,—all the result of the skill of the artificer in iron,—secured not only immunity from personal injury, but determined the rise and fall of nations, so later, owing to the development of the enginery of war, those nations which were best equipped with guns and armor plate have held supremacy.

Social psychology tells us that the impulse to kill, being one of the most primitive and basal in the long years of the struggle to survive, is even now but latent; and although in the individual, through the development of the reasoning faculties, it is overcome, except under the greatest provocation, still in communities the war spirit is but slightly dormant. This is made evident by the ease with which the mob is gathered on very slight provocation, and the extremes to which it will go before it can be forced under control.

The moderating effects of Peace Congresses will scarcely be felt, for a long time to come; for the reasoning faculties of the masses cannot be reached when the indignation of the latter is aroused. Meanwhile, in the march of progress, one branch of the iron and steel industry continues to carry death and destruction before it, while the other follows, furnishing the tools and implements employed in the pursuits of peace,—on the farm, in the construction of railroads and buildings, and in the arts and sciences,—and is ever developing a civilization which, while in peace, is preparing for a war that from its very wantonness will be prohibitive.

The vital forces of the world are moving in unison toward the uplifting of humanity. This seems to be the unceasing purpose that runs through the ages.

Power to destroy is shown in war, but a still greater power to build must be shown in peace, or there is no advance. In the history of nations which have made the greatest and most lasting progress, construction rather than destruction has been the gauge of strength; and as in the constructive arts, no less than in the art of war, the product of the iron master's furnace takes the foremost place, so we observe that the growth of the iron and steel industry has been most phenomenal among those nations which have become most enlightened. Thus, to recite the growth of this industry is but to tell the story of the human race, and although the origin of both is lost in the mist of the distant past, yet the important bearing which the industry has had on the race, when both were in their infancy, is marvelous to contemplate, and this interdependence of the race and industry is as notable now as it was then. For it is scarcely a couple of hundred years since man emerged in his habits from semi-barbarism, on the inception of his inventive faculty: it has been only since then that civilization has advanced with any great rapidity; and yet every step of progress has been heralded by some development in the iron and steel industry.

It is interesting to the student of history to note how slow has been the development of the industry through the ages; appreciating as he must its intimate relation to the race in every age.

The question must naturally arise in his mind, how much has national progress been delayed by the tardiness of the race, from time to time, to take advantage of its opportunities.

Still it is hard to imagine the difficulties under which man labored in early times before scientific principles supplanted cruder methods. Progress, attained only by repeated trial and failure, was slow in its advance. Since no accurate knowledge of chemistry or metallurgy existed, the smelting of iron was for centuries in the state of an art. The knowledge that the quality of iron depends upon its composition is as old as the human race, but that carbon is the element of predominating importance has been known in a scientific way only since the Swedish chemist Bergman announced it to the world about the middle of the eighteenth century. We now know that the amount of carbon contained in the charge of the iron worker's furnace determines whether the product is wrought iron, steel, or cast iron, or intermediate grades of each. And not only this. We also know that only a small fraction of one per cent of this element is necessary to make the difference, and that the ability to govern this amount accurately is the gauge of success or failure of a manufacturer of these products.

There is much room left for speculation as to the metallurgical methods and mechanical appliances adopted by primitive man in the manufacture of the early products of the forge. It is nevertheless probable that the earliest methods of iron smelting consisted in placing lumps of ore in a fire of wood or charcoal, located generally on the windward side of a hill, and after the lapse of sufficient time to permit of their more or less complete reduction, in hammering the mass of spongy metal thus formed into the desired shape. The quality of the product in any locality was largely governed by the grade of ore found there; the purer grade being easily reducible to soft wrought iron, while the more impure produced a harder iron or inferior grade of steel. And so, as we descend through the ages, we find that what was in the seventeenth century known as the Catalan forge, from its use in Catalonia, Spain, is but a comparatively slight modification of, or

improvement upon, the oldest appliance for the extraction of iron from the ore ; the main differences being in the size of the apparatus and the use of the artificial air blast. From this later time on, the size of the furnace grew ; but many years were to pass before metallurgical methods advanced one whit beyond those of which we have the earliest records. When methods already in use were effective, men were satisfied to leave well enough alone. It was purely by accident that improvements came about. Knowledge was wanting by which investigation could be made. The nineteenth century had almost arrived before man departed from primitive methods in the dissemination of knowledge of the elementary principles of chemistry.

It was the English chemist Joseph Black who put Henry Cort, of Gosport, in the way of inventing the puddling process, in 1784 ; thus introducing the first scientific departure from precedent. Since his time, metallurgical improvements in this process have been purely matters of detail ; the first of moment being in 1818, when Samuel Baldwyn Rogers substituted iron for the sand bottom of the puddle furnace. Mechanical appliances of various types have, more or less successfully, replaced hand labor in the manipulation of the puddle ball, but we now make wrought iron just as it was made over a century ago. The use of this product has become more general as methods of manufacture cheapened its cost ; but we have seen the forerunner of its gradual extinction from the trades in the advent of steel, during the middle of the century just past ; and iron is now in use only where quality of material is not a consideration, or in special cases where its property of welding admits of its being built up into shapes of difficult design. The Iron Age died with the nineteenth century.

Man is an imitative animal by heredity, and it was his natural tendency towards adherence to precedent that so long delayed the development of his originative faculties. To show that this defect in man's nature had an important bearing upon the iron industry, we have only to instance the long years of adherence in the trades to the original form of the hand hammer, before the

modern steam hammer supplanted it. Man's first tool was the uplifted hand grasping a stone, and from this came, after many years, the hammer. As heavier blows became necessary, the hammer grew in size until it was operated by machinery in the form of the tilt or helve hammer. When steam succeeded water as a motive power, a steam cylinder replaced the tripping cam, but the first half of the past century had nearly expired, before the original form of this tool was at all changed by James Nasmyth's invention of the upright steam hammer. Since then, the falling weight of this design of tool has gradually been increased from a few hundred pounds up to one hundred, and even one hundred and twenty-five, tons; but excepting the smaller sizes, up to twenty-five tons, it has, since 1890, been superseded by the hydraulic press, which by its slow motion produces a more thorough working of the metal. Presses have grown until the capacity of 14,000 tons was reached in 1893, requiring a 15,000 horse power engine to drive it. Such a tool, with its accompaniment of two hundred ton electric cranes for handling the work underneath, is capable of forging ingots over seventy-five inches in diameter and weighing more than 250,000 pounds. This whole plant, costing over a quarter of a million dollars, was not projected without an adequate understanding that it was to meet the commercial demands of many years to come, and industrial developments, great as these have been, have not as yet called for anything that has tasked its full capacity.

The earliest record of a means of obtaining an artificial air blast in the smelting of metals is sculptured on the walls of the tomb of Thothmes III. at Thebes, 1500 B. C., showing the character of forge and bellows used at that time. The latter consisted of leather bags, secured and fitted into a frame from which a clay pipe extended for conveying the air into the fire. They were worked alternately by the feet; the operator standing upon them with one under each foot. The air entered through a hole on the top of each bag, which was closed by the heel during the downward pressure; the entrance of the air being effected by

pulling up the top of the exhausted bag by a string held in the hand. No improvement over this apparatus is known to have been made until the valved bellows of the Romans came into existence about the fifth century A. D. The double-acting bellows made their appearance about 1600 A. D., and that curious contrivance, the Trompe, producing a blast by a fall of water entraining air, came into use, and enjoyed a short existence half a century later. Cumbrous cylinder blowing machines, with barrels and pistons made of wood operated by water wheels, appeared in 1760. The invention of the steam engine by James Watts, thirty years later, converted these machines into blowing engines, and brought about improvements in their details; but with the exception of refinements in design and consequent improved efficiency, we are still using the blast device of a century and a half ago.

The first quarter of the nineteenth century had passed before James Beaumont Neilson suggested the heating of the blast, and the century was half gone before the waste gases from the furnace were used as the source of this heat, and to make the steam which operated the engines for inducing the blast. At first the heating stoves were placed directly on the furnace top; later, as their increased size prohibited their occupation of this position, they were removed to the ground, and the gases diverted to them by properly arranged pipes. We are only now experimenting in the use of these gases in gas engines direct, although such engines have been perfected for more than a third of a century. This slowness of advance is more than conservatism. It is clinging to tradition with an apparent inability to break away from precedent.

Cast iron, which probably came from the accidental introduction of a flux during the process of smelting wrought iron, is first heard of during the fourteenth century, and by the sixteenth century, after gunpowder had modified the art of war, cannon were successfully cast up to three tons in weight.

The charcoal furnaces for producing this metal were at first small and crude affairs. It was not until the early part of the

seventeenth century, after Simon Sturtevant obtained a patent in England for the use of coal as a fuel, that the size of the furnace began to grow, and it was a century later before Abraham Darby, of Colebrookdale, after many failures on the part of others, due to opposition from the guilds, succeeded in substituting coke for coal. Even at the beginning of the nineteenth century, furnaces which had taken to the burning of coke were few. They were not more than twenty feet in height and five feet in diameter, at their largest part; the maximum output being twenty tons per week. By the middle of the century, this same type of furnace was the standard, but its height had doubled and its output increased five hundred per cent; the consumption of coke being four thousand eight hundred pounds to the ton of iron. Furnaces at the present day are still of the same type though improved in detail. Their height has grown to one hundred feet, their largest diameter to twenty-three feet, and they have a daily capacity of over seven hundred tons of pig iron, with a consumption of one thousand seven hundred pounds of coke per ton of iron. Thus, since the beginning of the nineteenth century, the world's output of pig iron has increased to forty million tons, with a saving of millions of tons of fuel. By the introduction of labor-saving appliances less manual labor is now required to handle five hundred tons than was necessary for fifty tons a century ago.

At the present time, so generally is the iron and steel industry recognized as the basis of prosperity of a nation, that the condition of the market of pig iron, the raw material of the industry, is zealously followed as an index by students of industrial science.

From the earliest times up to the middle of the eighteenth century, the only method by which steel was made was by heating wrought iron in close contact with charcoal, or some carbonaceous material. In 1741, Daniel Huntsman, a clock-maker of Handsworth near Sheffield, England, made practicable a process of making cast steel in small crucibles. At first the contents of the different crucibles were not sufficiently uniform in composition to allow of mixing; and the size of steel castings or forgings was limited to the amount of steel contained in one crucible. Later,

however, as skill in refining became more expert, the contents of many crucibles were poured into a ladle and the resultant mixture cast into moulds of suitable shape for use in the trades. The most successful pioneer in developing the crucible steel industry was Alfred Krupp of Essen, Germany, who, with his descendants, have always led their competitors in the size and excellence of castings and forgings of this metal. At the International Exhibition in London, in 1851, this intrepid manufacturer exhibited a cast steel ingot weighing two and one fourth tons; this being by far the largest steel casting made up to that time. He progressed rapidly after this, and at successive world's expositions—at Paris in 1855, at London in 1862, at Paris, again, in 1867, and at Vienna in 1873—exhibited ingots weighing respectively ten, twenty, forty, and fifty-two and one half tons. Since then the weights of ingots at these works have nearly doubled the amount last mentioned. When it is borne in mind that the contents of over four thousand crucibles are necessary to furnish the metal for these largest ingots, the great skill attained in the manipulation of material and men will be appreciated.

During the first half of the nineteenth century, sufficient progress had been made in the sciences of chemistry, metallurgy, and physics to enable investigators to begin to reason, with some knowledge of the principles of causation and sequence.

Scientific deductions were drawn from the results of experiment and experience, and advance along original and independent lines became active in all industries. This activity was all the more marked in the iron and steel industry, owing to the prominent part which this seemed forced to take, by the universality of the usefulness of its product. The industrial development that followed proved the importance of science in relation to the progress of the nation, and that the intimate blending of theory and practice lies at the root of all industrial success.

Instigated by an inborn prescience of the enormous possibilities of the future demands of commercial life, men devoted their lives and fortunes to improvements in methods and processes of manufacture. Many overcame the prejudice against

rough work and directed their energies to subduing the forces of nature. Among those strong and rugged characters who impressed their personality upon their times, were Henry Bessemer and Robert Mushet, who, divesting their minds of the trammels of precedent, struck out for themselves and developed and perfected, in 1856, the pneumatic process of making cast steel. It has been said, and with much plausibility of reason, that to it civilization owes more to-day than to all previous inventions of man put together. Such accomplishments seem almost to be inspired. From time to time, conditions seem to be ready to receive, and even to invite, great and revolutionary discoveries. At such times, the man is born to the emergency, not only with the latent idea, but with the courage of his convictions to labor persistently, until his project is developed and the result at which he aimed has been accomplished.

Encouraged by the success attained by the Bessemer-Mushet process of making steel, another, and now rival method, was projected in 1868, by the united efforts of Dr. C. W. Siemens of Germany, through his invention of a regenerative furnace for the melting of pig iron and iron ores, and of Pierre and Emile Martin, of Sireuil, France, who conceived a process of melting steel scrap in a bath of pig iron. These two methods were combined under the name of the "Siemens-Martin" or "Open Hearth" process. The hearth of this furnace, being capable of expansion to a capacity of seventy-five tons and upwards, allows a development in the size of ingots which is practically unlimited, from the possibility of combining the contents of several furnaces in one mould.

Improvements in details of construction have been made, from time to time, in these two processes. Special furnace linings for reducing certain grades of iron ore were devised, in 1872, by Sidney Thomas and Percy Gilchrist, so that high and low grades could both be reduced by the same process. Beyond mechanical improvements, however, in the form of the furnace and in methods of handling raw material and finished product, no changes have been made in the principles laid down by the inventors. Efforts are

now being made to combine the blast furnace with its product of cast iron and the open hearth furnace, and thus obtain a continuous process of making steel from the raw material. Thus far, the results of these efforts have been encouraging, and there is no reason, theoretical or mechanical, for their not being ultimately successful.

From this brief review of the various methods of making the raw materials of the industry, it will be seen that the first two thirds of the past century were devoted to experiment, invention, and development of processes. Prof. Thomas Young, in 1802-7, worked out the "modulus of elasticity," and thereby presented to the world a coefficient which gave great impetus to the study of the physical properties of iron and steel. In 1822, Faraday discovered that hardened steel dissolves completely in hydrochloric acid, but that soft steel yields a carburet of iron; thus showing that the quenching of hot steel in water changes its chemical composition.

About the middle of the century, technical schools began to be established and their influence upon the arts and sciences became at once apparent. As the abstract sciences of chemistry and physics became exact, they were incorporated in the industrial arts, and an increase in quantity of product without impairment of its quality became possible.

The study of the micro-structure of steel, first begun by Henry C. Sorby, in 1864, opened up a new and fruitful line of investigation, which has led to a more thorough knowledge of the effect of heat in the working of the metal.

Discoveries were made, from time to time, that the physical properties of steel were affected by the addition of a small percentage of some of the rarer metals, such as nickel, chromium, and tungsten: it thus became stronger, harder, or tougher for special purposes. From these discoveries, a race between the manufacturers of projectiles and armor plate has resulted at the present time, to the advantage of the latter, in the production of a hard and tough material; and thus armor clad naval vessels may be built much lighter, and yet of equal efficiency and greater carry-

ing capacity, than before. So, to this day, the nation possessing a superior quality of steel will lead all others, not only in trade supremacy, but in the war for right.

It would be impossible to mention in detail the developments that have taken place in the mechanical manipulation involved in the processes of manufacturing iron and steel; for in every step, from the mine to finished product, the change has been from manual labor to automatic machinery. Huge steam shovels; continuously operating conveyors; ponderous dumping machines which seize a car, overturn it, and pour its fifty tons of contents into pockets—are a few of the devices which are now in daily service, taking their part in reducing operating expenses.

Thus the tendency of the coöperation of the scientific investigator, analyst, industrial worker, and capitalist has been towards simplification of methods and the elimination of the labor element. This concentration of attack by thousands of minds and hundreds of thousands of strong and active hands has resulted in the cheapening of product, which has placed within the reach of modest accumulations of capital the adoption of these metals for every purpose.

Not only are our buildings, cars, and ships constructed of steel, but their furnishings and utensils are, to a large extent, made of the same material.

It seems almost incredible that all of this development has resulted from the affinity of iron for a minute quantity of carbon. Without doubt more issues of vital import to humanity can be traced to the interrelation of these two elements than to any similar occurrence in nature.

No wonder that so much time and thought and work and money have been expended in devising methods of making this combination at once exact and at low cost.

But the tendency of the generality of mankind to cling to precedent has directed his efforts towards improvements upon processes already existing, rather than towards discoveries in absolutely new fields.

In these days of the technical press and technical society, the

results of experiment and improvements in practice are freely offered to all manufacturers alike ; so that among representative concerns in the industry there is little difference in methods. The working of many minds in the same direction and along similar lines has forced competition to seek means other than technical to lower prices, and certain laws of economy in shop organization and efficiency of management have been developed, which are recognized as necessary for successful operation. All new works are thus projected, and it is only through reorganization along these lines that many of the manufacturers of special lines of product, which a few years ago were in affluent circumstances, are now able to exist. This condition of affairs has brought about a policy of combination, or consolidation, which, after passing through many legal vicissitudes, seems finally to have established itself on the principle of uniting, under one corporation, such separate concerns as have a community of interest. Thus the iron and coal mines ; the limestone quarries and the coke ovens ; the railroad and steamship lines which bring these raw materials to the furnace ; the smelter ; the rolling mill ; and the factory of specialties which are eventually bought by the public,—all are brought together in one corporate body and the intermediate profits merged into a common treasury. Much speculation has been indulged in by students of political and social science as to the ultimate benefits to the industry and to the world to be obtained by this policy.

Undoubtedly great economies can be effected by dispensing with many administrative offices,—each with its corps of high salaried officials and their assistants. Special mining and other facilities owned by any one company are now common property. The distribution of finished product by each mill to its legitimate territory will save time and cost of transportation. But the greatest benefit to all comes in the averting of severe competition between large and powerful interests. Great waste of money would have been entailed, and the suffering to labor, which must always bear the brunt of such disasters, would have been unparalleled in industrial history.

The danger of over-capitalization in these combinations has, however, not been avoided. Prices, therefore, must be kept up in order to provide for fixed charges. For this reason outside enterprises do not fear such severe competition as might otherwise ensue.

And yet it would seem to be useless to attempt to resist the attack of organizations with accumulated capital already reaching more than one billion dollars, with one able head and a small board of directors, who, by previous successful experience in similar combinations, are peculiarly fitted for their position. Still, unusual industrial situations have heretofore taken care of themselves. When they become strained, something breaks, and the abnormal condition is relieved.

One of the greatest foes of combinations of capital is at present organized labor. A sympathetic strike, affecting all of the individual interests of such a combination as that referred to, would jeopardize the safety of the latter within a very short time. This fact is bringing to the attention of capital that it owes to labor more than mere wages, and altruistic principles are being incorporated into systems of management, which are bringing to both labor and capital a better understanding of their mutual interests.

It is not without mingled feelings of pride and regret that the technician and the industrial worker in the iron field view the great combinations in their industry. Pride, that capital is showing such confidence in the result of their past labors as to rank their industry far beyond all others as a source of investment; regret, that the end to be attained is sought by means which would seem to imply that their limit of originality has been reached, and that no new process, which will relegate the present ones to obscurity, is expected for the future.

There is one other feature of the situation which must surely have impressed itself upon the student of history. It is a strange fact, that under the searchlight of modern science, poured from all directions upon the manufacture of iron and steel, the quality of product now turned out is little if at all superior to that of primitive man.

It would, in fact, seem as if some of the early iron smelters must have acquired more than a rudimentary insight into some of the primary principles of metallurgical practice, for the products of their forge have never been excelled. Swords made at Damascus and Bilbao still challenge our admiration ; and our metallurgical knowledge of the present day is taxed to its utmost to make steel which will cut the obsidian and basalt from which gigantic works were constructed in times absolutely prehistoric.

The questions naturally arise, after considering the wonderful developments of the nineteenth century, which have been due principally to the one discovery of the Bessemer process, Has science attained its end in devising methods of production ? and must further reduction of cost be reached through commercial methods ? Have chemistry, physics, metallurgy, and microscopy exhausted their resources in the development of at most two methods of making steel, neither of which is by any means perfect ? For it should be stated that no means have as yet been devised for eradicating from the composition of steel several elements, which though existing in minute quantities, tend to affect it in a deleterious manner. Is not the situation preparing itself to adopt, if it is not actually inviting, some entirely new process of making steel, which, while improving the quality of product, would cheapen its cost ? A discovery such as this would be received by the public with an open purse, and would prove the crowning ornament of the twentieth century.



M. ANTOINE AND THE THÉÂTRE LIBRE

A. FERDINAND HEROLD, *Paris.*



ABOUT thirteen years ago, a few young men and women, employés and artisans, were accustomed to meet from time to time either to recite poems or to sing songs. These meetings were held in the rear hall of one of the cafés of Montmartre; here groups of clever reciters assembled; here they invited their friends, and sometimes when there was a little more freedom from work than usual, they would give a little play. Their sole aim, in a word, was to have a good time.

These groups of artisans and employés who occupy their leisure moments in reciting verses or giving short plays are very numerous in Paris. The Parisian adores the theatre and everything that bears any resemblance to it; and not merely as a spectator; it is a great pleasure to him to lend himself, even for a moment, to the illusion that he is an actor. He loves to engage himself, if only for an evening, as a figurant, and as often as he has the chance, he is delighted to play a part.

The dramatic and lyric repertory of these little groups is, it must be confessed, decidedly dull and uninteresting: a few vaudevilles or a few little comedies interspersed with song, picked up in some café concert, or in one of the theatres of the quarters, constitute the whole of their dramatic capital; and as for poems, these amateur actors know only some of François Coppée's stories, or those of M. Paul Déroulède,—silly sentimentality or

declamatory patriotism. And the songs are worse still than the poems. But, for the most part, this does not arise from lack of taste or from bad intention on the part of the reciters, but simply from their faulty education.

The group of which we are speaking did not possess a repertory in any way different from so many others; they recited the "Grève des Forgerons" and "Bon Gîte"; and their career would doubtless have been most modest, if one of the young men among them had not, on a certain memorable occasion, made a strange proposition to his companions.

This young man had learned that in the same house with himself was a writer who, as it was rumored, composed plays for the theatre. He asked his colleagues if he might not go to see this author: perhaps he would have some unpublished piece which he would consent to let them play. It would be much more amusing to give a new play than the ones already known, which were always and ever the same;—and, reasoned the one who made the proposition, perhaps they might invite the journalists. He appealed to the "amour propre" of the others by showing them that in this way they might enter into competition with the "Cercle Pigalle."

The "Cercle Pigalle" was a group exactly like their own, but richer and with more members; and every year they played a "review"⁽¹⁾ composed by several of their number. Some of the dramatic critics had been present at the performances of these "reviews," and had been good enough to make public mention of them.

The proposition pleased our circle, and their audacious comrade was commissioned to call on his neighbor, the dramatic author, and to solicit from him an unpublished play.

Now the author in question was one of these "naturalists," who were then seeking in vain to have their plays performed at the regular theatres. The managers generally gave them a very harsh

(1) A species of dramatic representation, unknown outside of France, and intermediate between the comedy and the fairy scene.—TR.

reception ; maintaining that while their pieces had doubtless great literary merits, they were not written according to the rules of dramatic art, and would never succeed with the public. This fact, perhaps, induced the author to receive the amateur actor kindly. At all events, he gave him a short drama in one act, which he had just completed.

Such was the origin of the "Théâtre Libre" ; and the young men who rehearsed the little drama, whose interpretation had been intrusted to them, hardly suspected that their initiative was to mark a renewing of the theatre in France.

Still, the rehearsals did not go on without many difficulties. If the majority of the group were pleased at the idea of making a little stir, there was a minority whom the idea frightened. What good would it do to introduce strangers into their performances, until then so private ? And what strangers ? Journalists, indeed ! men who scarcely ever did anything but amuse themselves at the expense of others. Why should they bring the press into the private affairs of the group ? They would become ridiculous. And, furthermore, there were the expenses of the performance. The hall in which they were accustomed to meet was not large enough nor bright enough to receive the public which they thought of inviting. And a larger and brighter hall, with a landlord whom they did not know, would be sure to be most expensive. The funds of the group would be exhausted at a single stroke ; perhaps it would be even necessary to call for extra contributions ; and, then, after all they would merely have gratified the vanity of a few !

The pecuniary argument made even the warmest adherents of the play reflect ; and, for a moment, the whole scheme seemed likely to miscarry. But, of this group, where no one had as yet tried to assume the leadership, one man exhibited a sudden energy, and installed himself, so to speak, as director of the others.

This was an employé of the "Compagnie du Gaz." He had once appeared at the examination for admission to the classes of the Conservatoire, but without success. The necessities of life had compelled him to abandon a dramatic career ; he had

been obliged to renounce his artistic ambitions and content himself with a modest employment. Nevertheless, he had not lost his theatrical tastes, and was among the most active members of the little group of which we are writing. When the production of the unpublished play had been proposed, he was among the most enthusiastic supporters of the idea. His name was André Antoine.

It had been a great affliction to M. Antoine to give up what he felt was his true career. Now an opportunity was offered to him which he would perhaps never meet with again; and, since an author had given a play and the rehearsals had begun, he decided that, cost what it might, this play must be offered to the public.

Under certain circumstances, it is right to impose necessary sacrifices upon ourselves: he and his comrades would only profit by showing of what they were capable. M. Antoine, on brief notice, made himself director of the theatre, and, to cut objections short, he declared that he would assume the expenses of the performance.

The first thing he did was to make sure of a hall. There was one at the end of a narrow, dark passage of Montmartre, the passage of the Elysée-des-Beaux-Arts. For a single evening the landlord demanded one hundred and fifty francs, and was willing to let M. Antoine have it only after receiving the price agreed upon. M. Antoine pledged himself to pay the one hundred and fifty francs, and fixed the date of the performance for the last day of the month: on that morning, he would receive his wages from the "Compagnie du Gaz," and could thus furnish the promised sum and secure the hall.

The next thing was to invite the dramatic critics. And at last the performance took place.

This was barely mentioned, and but few critics had been present. But M. Antoine was not discouraged. He asked for manuscripts; authors who suffered from the difficulty of getting their pieces accepted, responded to his appeal; and by July, 1887, three performances of the Théâtre Libre had taken place in the hall in the passage of the Elysée-des-Beaux-Arts, and several critics had called the attention of the public to the new enterprise and to its courageous director.

M. Antoine had decided to pursue the work thus commenced,—a work that was after all born of chance and of which only his presence of mind in a critical moment had made him director. The theatres are usually closed throughout July, August, and September: the directors then take their rest, and prepare for the next season during these months; M. Antoine prepared for his season, but he did not rest.

He had notices inserted in the journals, in which he announced eight performances for the season of 1887-1888, and in which he also requested authors to send him manuscripts. A very influential critic, who willingly assumed a benevolent attitude towards new dramatic enterprises,—though ever ready to exhibit an extreme malevolence, when he saw them succeeding without following his own æsthetic canons,—this critic, François Sarcy, made known the plans of M. Antoine and invited the men of the younger generation to intrust their plays to him. M. Antoine received manuscripts of all kinds and descriptions; some even from well known authors.

But the important thing was the money with which to produce the plays thus received. The hall in the passage of the *Elysée-des-Beaux-Arts* now seemed very modest in M. Antoine's eyes; he wanted a larger one; a real theatre was necessary, where there would be a real stage. He made his calculations and came to the conclusion that with eight thousand francs—one thousand francs a performance—he could give the eight promised plays. He decided that the subscription for the entire eight plays should be a hundred francs. Consequently it was necessary to find eighty subscribers.

M. Antoine knew that it is very difficult in Paris to find eighty people ready to pay a hundred francs for a season ticket, even for uncommon plays. The world runs eagerly to see such plays, but it does not like to pay for its seats; as if, in its eyes, there was a certain disgrace in so doing. It often happens that men of wealth devote entire hours to securing an invitation to one of these performances, when, otherwise, in a very few minutes and at a moderate price, they could secure excellent seats. M.

Antoine was not ignorant of this caprice of the worldlings; and besides, certain of the journalists with whom he came in contact did not hide from him how difficult was the task upon which he was venturing. Some even went so far as to predict a complete failure. But M. Antoine persevered; he then gave proof of the tenacity which is one of his greatest qualities; and in order that his enterprise should succeed, he submitted to the most discouraging work that could be conceived; he wrote—unaided, as he could not afford a secretary at that time—more than fifteen hundred letters, and addressed them to every one in Paris of any note whatever. And, to reduce postal expenses, he even delivered a great number of these letters himself. This rare effort met with its deserved reward. M. Antoine sold a sufficient number of tickets to assure the expenses of the eight performances to which he had bound himself.

He rented, eight times in a year, one of these extraordinary halls of Paris,—the theatre of Montparnasse. And soon the performances of the Théâtre Libre attracted so much attention that the choicest audiences came with pleasure, once a month, to one of the most crowded and dingy quarters of Paris.

The following year the number of subscribers increased. M. Antoine was obliged to transfer the Théâtre Libre to the hall of the Menus-Plaisirs, situated in a more central quarter; and from this hall he did not move. It became the fashion to go to the Théâtre Libre, and it was also the proper thing to be a subscriber. And the time came when M. Antoine found it advisable to give two performances in an evening. But while he obtained this brilliant result, it was only by a continued activity, an activity which had led him many times to undertake pretty long pilgrimages. Thus he was unexpectedly obliged to set out for Berlin on the very day following a performance. It was under these circumstances:—

M. Antoine had given at the Théâtre Libre Gerhart Hauptmann's "Die Weber," and the play had met with the greatest success. Consequently, M. Antoine had asked Hauptmann to send him his next drama as soon as he finished it; thus

the piece could be given in Berlin and Paris at about the same time. The idea pleased Hauptmann, and M. Antoine received, soon after its completion, the "Hannele Mattern." M. Antoine was most enthusiastic over the new play, and held to it that this piece should be given in Paris simultaneously with its production in Berlin. But he wanted to see the play in Germany first, in order, he said, that it might be staged better in Paris than in Berlin. And M. Jean Thorel, translator of the "Hannele," had learned the date of the general rehearsal at the "Schauspielhaus" in Berlin, and had obtained leave to be present with M. Antoine.

But this general rehearsal came a very few days after a performance at the Théâtre Libre, and this production, to which M. Antoine gave all his care, prevented him from preparing for his journey to Berlin. Besides, the performance was delayed from various causes, and it was during the play itself that M. Thorel discovered that if they wanted to reach Berlin in time to see the general rehearsal of the "Hannele," they would have to leave the next morning at eight o'clock. He took advantage of the first entr'acte, and hastened to warn M. Antoine of the necessity of a sudden departure. He expected that M. Antoine, tired as he was, would renounce his scheme of a simultaneous production and content himself with seeing "Hannele" only after some performances had been given, and so delay its first appearance in Paris. But by no means! M. Antoine assured M. Thorel that he would leave the next morning, and that he would be at the station before eight o'clock. Up to the last moment, M. Thorel expected that M. Antoine would miss the appointment; but all his doubts were dispelled, and upon entering the station, he was obliged to offer the "amende honorable." M. Antoine had arrived there first! It appears, though, that he slept all the way from Paris to Berlin.

This anecdote—and I might give many others—shows M. Antoine's supreme energy, in the strength of which he has overcome innumerable difficulties.

The time came when the fortunes of the Théâtre Libre declined and M. Antoine's financial supporters forsook him.

We can point to many reasons for this fact. In the first place, it must be confessed that the performances were not so interesting as before; the best among the "authors of the Théâtre Libre," as they were called, were now amicably received by the managers of the regular theatres: some even had their plays directly solicited. And M. Antoine had to be content with works of secondary value. And then—without originally desiring this, as we shall presently endeavor to prove—M. Antoine was the warmest adherent of the naturalist school; and the fashionable public, which assured the prosperity of the Théâtre Libre, no longer affected to enjoy naturalist plays. The public followed the fashion, and the fashion was becoming idealistic and mystical.

M. Antoine, always prudent, perceived that the palmy days of the Théâtre Libre were over; he gave up his position as director and devised new enterprises by which he might attract the great public. And, first, he wanted to come in contact with this public, which, as yet, had never had the opportunity to judge his own talent for acting. Accordingly, he played many parts at the Théâtre du Gymnase and the Théâtre de la Renaissance, and went touring among the larger cities of the provinces.

It was during one of these tours that he received a notable dispatch. He was ordered to return to Paris immediately, where the Minister of Fine Arts desired an interview with him. The matter was one of intrusting to M. Ginisty, a well known man of letters, and to M. Antoine the direction of one of the literary theatres supported by the State,—the Odéon.

For a long time, it had been M. Antoine's secret ambition to become manager of the Odéon. It seemed as if this theatre had been created for daring projects. Supervision on the part of the State hindered the director's liberty but little, and its support diminished much of the pecuniary risk. And then, too, the young writers, to whatever group they belonged, all felt that it was to their interest to have the Odéon directed by a skilful, intelligent, and daring man. They all agreed to support M. Antoine as candidate. Accordingly, M. Antoine made haste to reply to this call, which he received most unexpectedly, since

the director of the Odéon, then in office, had resigned very abruptly.

M. Antoine accepted the offer which was made to him, and was, conjointly with M. Ginisty, installed as director of the Odéon.

As soon as he was duly in office, M. Antoine laid his plans to conduct the Odéon on an entirely new basis. There was quite a large company of actors whose engagements he did not renew, and to replace these he appealed to several of those who had proved at the Théâtre Libre their talent and their zeal. He required of the troupe an amount of work to which they had not been accustomed. He was anxious to renew, in some parts at least, the much worn stock of decorations and costumes. In short, he planned, within a few months, to transform the Odéon, with its sleepy traditions, into one of the most wide-awake theatres in Paris.

All this displeased a large number, and the season had been opened only for about three weeks when the greater part of the actors, machinists, and assistants in general conspired against M. Antoine. M. Ginisty did not come to the aid of his associate. The conflict grew into actual warfare; at the end of about a month and a half, M. Antoine judged that it was best for him to give in his resignation, and M. Ginisty remained sole director of the Odéon. It was, on the whole, party routine which had outdone him.

M. Antoine lost some credit by this reverse, but he was not the man to be discouraged. He signed an engagement with a manager of dramatic tours to give performances in the large cities of Europe. A few days before his departure, towards the end of 1896, in a conversation with some friends, authors and actors, he told them plainly that before a year had passed he would have a regular theatre in Paris where he could do as he pleased.

And M. Antoine made good his words. When he returned to Paris, at the close of his engagement, he found that the hall of the Menus-Plaisirs, where the performances of the Théâtre Libre had formerly been given, was vacant; he rented this, and

soon formed a company. Many of his friends were doubtful as to the success of the enterprise; but M. Antoine was sure of the result. Time has proved that he was right, and to-day the "Théâtre Antoine" is among the most prosperous in Paris, and is perhaps that theatre where one works the most energetically.

II.

If we consult the series of programmes of the performances that M. Antoine gave at the Théâtre Libre, we shall soon perceive that the so-called "naturalist" plays were far more numerous than any others. Thus, it was not astonishing that M. Antoine, should be, on the whole, deemed a very active partisan of the naturalist drama, and that some should go so far as to declare that the Théâtre Libre had been founded to encourage the dramatic works of the naturalist writers to the detriment of other plays.

But this would be going too far. It is certain, however, that in establishing the Théâtre Libre, M. Antoine became the most useful among the allies of the naturalist authors. But this was entirely without premeditation, and it was circumstance, rather than his own will, which gave him the appearance of being a zealous naturalist.

M. Antoine has always denied that he is the instrument of any particular literary group. He has always declared that he had played in the past, and would play in the future, any good, interesting, or curious play, whatever the tendencies of the author might be. And if we glance at the early programmes of the Théâtre Libre, our doubts are at once dispelled concerning M. Antoine's eclecticism—at the outset, at least, of his career.

And, indeed, along with "Jacques Damour," a drama that M. Paul Hennequin had adapted from one of Emile Zola's novels; "Mademoiselle Pomme," a play by M. Paul Alexis; "En Famille," by M. Oscar Méténier; "Sœur Philomène," after the celebrated novel by the brothers Goncourt; "La Prose," by M. Salandri; "La Sérénade," by Jean Jullien; "Les Résignés," by M. Céard,—all plays that may, for various reasons,

be termed naturalist, M. Antoine gave, during the early seasons of the Théâtre Libre, the "Nuit bergamasque," by M. Emile Bergerat; "L'Evasion," by Villiers de l'Isle Adam; "La Femme de Tabarin," by M. Catulle Mendès; "Le Baiser," by Théodore de Banville; "Le Pain du Péché," by Théodore Aubanel and Paul Arène,—all of which are dramas from the hands of poets, and do not bear the slightest resemblance to the naturalist dramas. Even at the Menus-Plaisirs, M. Antoine accepted "La Reine Fiammette," a dramatic story by M. Catulle Mendès, and he produced a lovely fairy scene, the "Cor Fleuri," by one of the best among the recent poets, Ephraïm Mikhaël, who died prematurely ten years ago; and with "L'Amante du Christ," by M. Rodolphe Darzens, he inaugurated the series of plays taken from the Gospels, which have since become so numerous.

Notwithstanding all this, M. Antoine confined himself more to producing naturalist plays. And for this we may point out several reasons.

To begin with, the poets of that time either did not write dramatic works, or they were admitted without much difficulty into the regular theatres; and if they did give a play to M. Antoine, it was rather to show their sympathy than through necessity.

Secondly, M. Antoine's subscribers demanded performances, which should be out of the ordinary; the poetic plays given at the Théâtre Libre always reminded them of those that they saw at the Comédie Française or at the Odéon; they received them coldly, and reserved their applause for the naturalist dramas, at that time excluded from the regular stages.

In the third place, dramas whose scenes are laid in the present time are much less costly in the production than plays whose action is in historic or imaginary times; and the resources of the Théâtre Libre, even during its most prosperous days, were always more or less restricted.

And, lastly, it must be confessed, M. Antoine, in spite of the superior intelligence which inclined him towards eclecticism, had

himself some of his subscribers' tastes; he always preferred to any others the naturalist plays, which he knew better how to stage, and in which, as actor, he felt more at his ease.

However, after some little time had passed, there was evolved what was known as the "species Théâtre Libre." Besides the authors already quoted, new ones were constantly joining: M. Georges Ancey, author of "Les Inséparables" and "l'Ecole des Veufs"; M. Lucien Descaves, author of the "Chapons"; M. Brioux, author of "Blanchette"; M. Georges Courteline, author of "Bon Boubouroche,"—and I do not know how many others. And, during the last years of the existence of the Théâtre Libre, M. Antoine, as if to prove that he had not deserted the old eclecticism, revealed to the public an author who was trying new paths,—M. François de Curel.

We must not forget, either, that contrary to the greater number of French directors, M. Antoine kept well in touch with the dramatic movement in foreign lands. It was through him that the "Power of Darkness" by Leo Tolstoy was played in Paris. At a time also when, except among the curious, the name of Henrik Ibsen was unknown in France, M. Antoine produced "Ghosts," and later the "Wild Duck." He brought out "Die Weber" and the "Hannele" of Gerhart Hauptmann, with the greatest enthusiasm; and it was at the Théâtre Libre that a play by Björnson, translated into French, was produced. This play was entitled "Bankruptcy."

III.

The early performances of the Théâtre Libre did not take place without a certain degree of scandal. But this very fact was one of the reasons of their success. And this did not arise wholly from the plays that were given; it came also from the way in which they were produced.

It is, indeed, as stage manager and as actor that M. Antoine has had perhaps the greatest influence over the modern theatre.

At first, people made fun of his innovations and pretended to attach importance only to certain of them which might seem

puerile. It was thus that the rumor spread, that at the Théâtre Libre the players would go through whole acts with their backs turned to the public. There was nothing in this. M. Antoine, had indeed, at one time or another, made several replies with his back turned to the audience; but it was very natural, and added much to the truth of the setting. No one in Paris, however, had ever dared to do this before. And the public laughed at the innovation, until one day they woke up to perceive that, by an accumulation of such details, M. Antoine had overcome the false and monotonous manner of acting to which they had been accustomed, and had so improved the public's taste that this old manner was no longer endurable.

During the last ten years, the art of staging has undergone fundamental changes in the Parisian theatres. The plays are given with more varied movements than before, and the attitudes of the actors resemble much more closely those of real life. Even the tone of dramatic speech has been modified; the actors declaim less than formerly; they talk instead of reciting as they once did. And, on account of this, the acting, even in the most fantastic plays, has gained in truth and life.

Nor does the scenery resemble that of a few years ago. Formerly for an interior, they painted the pictures, with their frames, their curtains, hangings, and even the furniture, upon the walls; to-day they fasten real pictures with real frames upon the paneling; they hang real curtains at windows that often have real glass panes, and they put real locks on the doors. To be sure, such little exactitudes will not secure the interest of the spectator for a tiresome play; but they help to enliven a play that is endowed with observation and movement.

Almost all these innovations are due to M. Antoine. He was the first to use actual locks on the doors; and to-day, there is not a manager, however careless he may be about the staging, who would dare to leave them off. He was the first to seat some of the guests at a stage dinner with their backs to the audience; and to-day, no manager would dare to make all the guests face the public. And if they did not conform to the

methods inaugurated by M. Antoine, the very ones among the spectators who jeered at them, ten years ago, would be the first to be shocked.

Again, M. Antoine knows better than any other how to move a mass of people on the stage. For a long time, he had but little occasion to manifest this talent; the plays that he produced at the Théâtre Libre did not call for a numerous cast. Nevertheless, he studied what was done on the foreign stages; for the Parisian custom was to have the figurant remain almost motionless. He saw the Duke of Meiningen's celebrated company play the great dramas of Schiller and Shakespeare, and he was much impressed with the exactness with which they rendered the movements of a multitude. And when he produced "*Die Weber*," he proved that he also was past master in the art of moving masses. One of his keenest regrets at leaving the Odéon was at being obliged to give up the model performances of Shakespeare's *Julius Cæsar* that he intended to give.

As an actor, M. Antoine is very remarkable. He requires a great deal of his collaborators, but he does not spare himself. There is no rôle which displeases him; among great actors there is no part which takes rank over another, and it is thus with M. Antoine. We have seen him impersonate by turns young men and aged ones; there is not a social class whose customs he has not studied. And, at every turn, his acting is truth and exactness itself. Some deny him the power of attaining grandeur. But he was at special pains to prove how false this charge was, the evening he played François Curel's "*Nouvelle Idole*." In the last act of this play, he was admirable in his simplicity, emotion, and majesty.

Now, at length, M. Antoine may rest. No one contests his power, no one would wish to deny the services that he has rendered dramatic art in France. But, nevertheless, he is one of the most active of managers; he superintends everything in his theatre; he is actor, stage manager, administrator, and it often happens that he arranges a meeting with an author after a performance, to hear the reading of a play.

Now as to the official recompense that has come to M. Antoine. The evening on which in the hall of the Élysée-des-Beaux-Arts, he inaugurated the Théâtre Libre, he did not suspect that some day he would be decorated.¹ But he had the will to do something. He has done something. And since he is still active, since he still retains his horror of anything common, since he has lost none of his eager youthful qualities,—we may hope that he will yet do many things,—things which we may certainly predict will be full of interest.

(1) The "Figaro," for Dec. 21, 1900, contained the announcement that M. Antoine had been made Chevalier of the Legion of Honor.—TR.



GERMAN CRITICISM

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THE critical instinct is native to man. Aristotle has called man a "political animal"; with almost greater right might he be called the "critical being." The suggestive Bible narrative puts the effort of mankind after criticism at the very beginning of human history: if man can distinguish good and evil, he feels himself as one of the gods. The child begins the early practice of æsthetic criticism when, with naïve frankness, he repulses a playmate: "He is too ugly for me." Savages on the lowest plane of civilization apply criticism to the tales that are told them. It is found everywhere, it must be found everywhere, among mankind.

How does it happen, then, that, in spite of this inevitable and universal exercise of the critical faculty, the origin of criticism is nevertheless assigned to a definite age, and that a late one? How is it possible that a single and comparatively young nation should be regarded as the inventor of the critical method?

That critical spirit, on which all modern science is based, has, as it were, come into the world almost before our very eyes. The Renaissance first opened it a path; with Galileo and Descartes it first became conscious of its power. But it was left to German scholars to make it an omnipotent ruler, and to extend its authority to the very realm in which caprice had longest ruled, that of taste. What lay in the germ in Adam shot up in Galileo

to the fully developed tree ; what was practiced thousands of years ago by awkward beginners has become in the nineteenth century system and law. What was done, as occasion offered, "always, everywhere, and by all," became in one small part of the inhabited globe the rule, and has been thence diffused in intensified form over the whole world. What is, pray, this criticism, this critical spirit, this critical method ?

Criticism is nothing else than the art of putting a thing where it belongs. What order does with tangible objects, is rendered possible in things of the mind by criticism, that we may have (to use the English proverb) a place for everything and everything in its place.

Let us conceive ourselves transported to primeval times. No tradition exists as yet ; as yet no abstract judgments and views have been formulated ; as yet each individual must, with his own weak and insufficient powers, perform what, thousands of years later, Schelling assigned to a philosophy born of unnumbered efforts and conquests, as its task, "to mould the world." Impressions throng upon the individual ; he must try to reduce them to order, that he may master them. What impressions belong together ? He must frame for himself definite labels in order to distinguish the phenomena that belong together ; and these most ancient tools of criticism we call "criteria." Throngs of animate beings surround him ; some howl, neigh, growl, sing, cluck ; others speak. He makes speech the criterion, and classes the articulate together as "human beings." The others he calls "beasts," and probably makes the mistake of including under this designation many that move and give forth sounds without being "alive." Then, he makes further distinctions among the "beasts." "A bird is known by his feathers," says the German proverb ; whatever has feathers is a "bird." In the same way also, the savage exercises his critical faculty on *ideas*. The feeling of hunger, the smart of a wound, grief over his dead wife,—he groups together as "pain," other feelings as "joy" ; and soon he begins to exercise his taste, and calls gold, the song of birds, the face of his bride, "pleasant to perceive," "beautiful," while he calls the

howl of the wolf, the roar of the storm, "terrible to hear," "hideous."

Here we have the beginning of an endless evolution. Science consists of such generalizations resting on criteria; æsthetic criticism, of such verdicts of taste. Both have a common root, but science is the older. Language furnishes science the indispensable preliminary conditions; it arranges in categories animate and inanimate, primary and subordinate, things; it furnishes abstract conceptions. But as to what is "beautiful" or "good" the criteria are lacking, long, long after we know what "man," "beast," and "bird" is.

Slowly is developed, out of the common activities of the many, the sterner art of the elect few. Men who are specially fitted to group together the like, to distinguish the unlike, devote themselves to science, just as the specially strong man turns smith, the man of musical gifts, singer or harper. By deliberate observation and comparison, exercised, not as among the rabble, by chance, but with active attention and unswerving devotion, they win new tools for criticism. They discover finer criteria. The flowers that the common people confound, they distinguish by the leaves in one case being serrate, in the other not; two springs which old women recommend without distinction for every infirmity, are found adapted, the one for sores, the other for leprosy.

Thus arises a succession of sciences. The oldest of all is that one in which every savage race attains perfection,—the art of dealing with the gods. Out of hundreds of thousands of experiences, a code of rules for prayer and sacrifice is firmly established; it has its appointed guardians, the priests; every one uses it. At its heels follows medical science, which has preserved, from the medicine-men of the Indian up to Virchow's cellular pathology, the character of a popular science; that is, the critical and the uncritical attitude exist side by side, rude observation beside careful comparison. But there is no consistent system.

The *system*, that indispensable foundation of all higher criticism, was created in primeval times by two very different races

for two very different sciences. The Chaldeans developed astronomy, the people of India the science of language, into a well ordered system. Here we find no such chaos of indiscriminate definitions as in the liturgical code of prayer and sacrifice. We have no mere empirical catalogue of orderly and disorderly facts, as in medicine. We have a unified whole, in which one part supports, presupposes, and supplements the other.

What is a scientific system? It is nothing else than a huge system of checks. As in a great business house books are kept by which buyers and sellers, cashier and bookkeeper, are mutually controlled; so here lists are at hand that serve as a mutual test. Take for instance Sanskrit grammar. The whole vocabulary is analyzed twice: once by its sounds, once by its forms. Each separate sound is assigned to a definite class, each word to its category. I meet a single word—where does it belong? An exact criterion decides whether it belongs with the verbs or with the nouns. I can follow up the system of checks, and learn, if it is a verb, to which conjugation it belongs, to what tense, to what person. Finally, I reach its exact characterization: “this word is the second person singular of the present indicative of such and such a verb.” This is determined as clearly as the automatic till shows on its sign the sum that has been deposited in payment.

A scientific system can, however, be one of three sorts,—a synchronous system, a consecutive system, or both together.

Language presents a system of synchronism. All its forms exist side by side. The case is the same with a botanical or a zoölogical system. In medical science, on the other hand, the question is chiefly one of succession. If this disease is present, this remedy must be used; sweat follows, and then this draught must be taken; the patient will fall asleep, and then this salve must be rubbed on his skin. In astronomy, again, synchronism and consecutiveness mutually presuppose each other. Yonder constellation, that conjunction of the seven planets, depends on Saturn’s being there, Luna here, and Mars between them.

All three varieties of system exist to-day in science. For

instance, the table of the chemical elements is a synchronous system, and its automatic control is so trustworthy that Mendeléeff and Lothar Meyer could deduce from the table of existing (that is, already discovered) elements those still lacking (that is, yet to be discovered elements), which have been since then for the most part found. A system serves, therefore, not only for criticism of the known, but also for criticism of knowledge itself; it is an automatic control, not only for our knowledge, but also for our ignorance, temporary or permanent. Just in this lies the extraordinary significance of scientific systems. A consecutive system is presented by every process of development when it shows us, for instance, the egg, the embryo, and the new-born creature, one after the other, as of one and the same kind.

But by far the greater number of sciences make use of both the synchronous and the consecutive system. Above all, that science in which sequence plays the greatest rôle, the science of history, has long ago ceased to string dates in order along a slender thread. It takes into account the whole breadth of the historical process, above all, the many currents which are simultaneously active in a given nation. To-day, whoever writes the history of the United States dares not content himself with putting under one another a few dates, from the battle of Bunker Hill to that of Saratoga. He must keep his eye on the simultaneous facts of the slaveholders and the abolitionists, the growth of manufacture and of agriculture, the homes of culture and of art; he must note, alongside of Washington and Lincoln, Emerson and Longfellow, Whitney and Edison. So it is everywhere. Just so, philology has long ago become an historical science, which supplements the synchronism of contemporary and living forms by the sequence of the periods of a language. So, too, have the comparative disciplines of natural science been rounded out. The scientific systems of the present have almost all two dimensions; they stretch their arms at once through time and through space.

It is probably clear, now, how vastly the automatic control of science has been perfected and refined. And in fact all devel-

opment of criticism rests on this control being more and more logically developed and more skilfully handled.

What, now, will promote these two things: the more logical development of system and their more skilful manipulation?

The most important condition of this two-fold progress is tradition. By the handing on to the next generation of the attempts and observations of the preceding one, by the transmission of them from one people to another, there comes into being on top of one scientific system, as it were, a second, a more widely extended system of scientific effort. The latter is related to the former as the activities of a number of whist players are to the fixed laws of this game; these laws are enriched by new experiences; outworn laws are replaced by new and modified definitions. Just as an atmosphere many miles deep envelops our globe, so there lies over every science a huge stratum of experiments, hypotheses, contradictions, doubts, tentatives, from which precipitation is continually taking place, often in the form of fertilizing rain, sometimes, too, in the form of destructive yet wholesome storms. Ceaselessly do the toilers find, here too little, there too much; the individual is seldom able to discover the remedy alone, but from somewhere out of the past, out of the distance, a hand is stretched out to him which shows him the path. So the generations work together. And the master hands on to the pupil deft methods, the fellow workman requires continual guidance; and thus is learned the tending of the great machine with greater and greater skill.

Nevertheless, it would all remain patchwork and progress be slow and toilsome, if *individual genius*, critical genius, did not interpose from time to time in this collective task with a certain miraculous force.

Darwin's theory refers almost every advance to the selection exercised by the struggle for existence. Among the many who aid unnoticed in the task of criticism, there goes on a selection of professional critics,—the investigators and the scholars. Out of the midst of these emerges, from time to time, some splendid example of the type, who by virtue of an especially happy endow-

ment overcomes difficulties that seemed insurmountable to his fellows, who performs, in sport as it were, what centuries have toiled at, as Theseus rolled easily aside the huge stone under which his father's sword lay buried. This is done by an individual, or sometimes by a single race, a single generation,—Galileo, the Greeks, the Germans, the scientists and philologists at the beginning of the eighteenth century.

The first and most momentous triumph in this field was won by the most richly endowed race that human history knows, the Greeks.

The progress from the aimless observations of individuals to a system, consisted in this, that an order was introduced and applied in which these separate observations supplemented and checked one another, as do the various officials of the same civil administration. But the individual systems themselves still stood in chaotic confusion beside one another. An individual was needed to introduce order here too; an individual framed, out of the many ideas concerning politics, science, jurisprudence, medicine, astronomy, psychology, mathematics, philology, a new and great conception,—*science*. We know this individual and his divine name,—Plato. And we know, too, the man who with tremendous energy undertook the task of carrying out the new programme, who first created a system of separate sciences, a classification of human knowledge,—Aristotle.

Since the days of these two men, we have had what was as indispensable to criticism for its highest development as was system on its lower plane. Since Plato and Aristotle, we have the cosmos of the sciences, the full rounded whole of the disciplines, which, from this time on, mutually support and serve, aid and check one another, as do the individual observations in any one system. Philology needs the science of history, if for nothing else, to determine the date of its monuments. The science of history needs philology, if for nothing else, to read its original documents. Anatomy can dispense with physiology as little as physiology with anatomy. So it is everywhere.

This cycle of sciences is of course capable of being endlessly

perfected, as is the single system, and it needs such perfecting. New departments of knowledge are still arising daily. How young are statistics, linguistics, the science of religion, even physiology ! But now, and for a long time past, the common effort of the sciences has sufficed to give criticism a far greater sharpness of outline than was possible before this vast solidarity of effort existed in so grand a style.

And yet for a long time this community of the sciences did not accomplish, by any means, all that it might. The machine had existed since the days of Plato and Aristotle, but it had not yet achieved much more than the effort of the individual had previously accomplished. It was centuries before this so masterly invention performed its functions perfectly.

This was due primarily to the fact that there was too wide an interval between the conception of a comprehensive science and the material actually at hand. It almost seemed as if the attempt were being made to load a modern cannon with birdshot. There were yawning gaps everywhere which criticism did not fill up, which it did not even observe. The pleasant belief was cherished, for instance, that the real image of the inhabited world was approximately known, whereas now any map reminds us by its vacant spaces, with sufficient distinctness, how much we have still to learn in geography. Comparatively little being known, the check was constantly lacking which, otherwise, one fact would have exercised on another. To-day we learn much of importance concerning the formation of the Alps by the study of the Andes, and the volcanoes of Hawaii are able to correct erroneous views which we may have formed from the observation of Vesuvius and Etna. A loose collection of a few isolated facts, on the other hand, makes criticism more difficult, which is the reason why every young science is uncritical, as we see even to-day in comparative mythology or in ethnology. And in ancient times every science was young ; at most, only mathematics and astronomy—and of course descriptive zoölogy and botany—had some considerable antiquity behind them.

Youngest of all was that science in which "criticism," or rather

"criticising," plays the largest rôle,—æsthetics. That the word was first invented by a German professor in the eighteenth century is of no significance; anthropology and sociology had been in existence for a long time before names were found for them. The fact is, that the Greeks had already laid the foundation for a science of æsthetics, that is, for a critical judgment on works of art; for that is æsthetics. The beauties of nature must also be conceived of and criticised as are works of art. Socrates, Plato, Aristotle, are really the ancestors of German, of modern art criticism. But nowhere is it more plain than here, that an able programme can accomplish little, even in the hand of an able man, if material be lacking.

The contrast between the lofty conception of a comprehensive science and its actual prosecution, with as yet wholly insufficient means, appears with fatal prominence in the æsthetic theory of the Greeks. It is scarcely an exaggeration to say that Aristotle is to blame, that not till Winckelmann and Lessing and Herder and the Romanticists was the criticism of art, along large lines, possible. All the nations that pinned their faith to the Greek theory of art fell behind in the race, however bold may have been the revolt of individual innovators in practice (like Shakespeare) or in theory (like Diderot) against the old models. The courage to protest against the poetic theory of Aristotle gave birth to modern æsthetic criticism; for not till then was it possible to assign the greatest artistic triumph of modern times, the drama of Shakespeare, its proper place.

Aristotle views the art of poetry with the eyes of the cultivated, or rather learned, Greek. Popular poetry interests him little; the poetry of the "barbarians" is unknown to him. Hence he draws conclusions from delightful, in its way, incomparable but insufficient material. What the tragedy of Sophocles aims at is elevated to a necessary postulate of tragic art. Accordingly, every honest disciple of Aristotle passes judgments such as Voltaire and Frederick the Great passed when they said that Shakespeare's works were the ravings of a drunken savage. The standard of comedy was Aristophanes; whoever accepted this

could of course only despise the delightful comedies of Spain. The same holds true of the epic, though here the effect was not so disastrous; the same of the lyric, where great mischief has been wrought.

It is plain that the great master of Stagira suffered simply from the small range of his knowledge of literary history, to express ourselves with modern pedantry. Athens was for him the world; and what held good for Athens was to hold good for the world. The isolated phenomena exhibited by the Attic drama proper were excellently explained; the recognition scene, the chorus, received adequate interpretation in their connection with the whole. One thing, however, was overlooked by the ancient world,—that this same Attic drama was self-limited, that it must be placed in its turn as a whole in a larger context, if it was to be understood. As soon as the necessity of this demand was recognized, a new and higher plane of æsthetic criticism was reached.

The Middle Ages did not attain to this. In the Middle Ages, there were two sharply contrasted types of the theory and criticism of art. On one hand, there were scholars who, according to the measure of their capacities, regarded and adopted the doctrines and views of Aristotle and his Latin followers as infallible canons. This offered little hope of progress. Not unjustly did the monks of St. Gall's make merry, when the learned Gunzo from the Belgian monastery of St. Armand unfolded to them, in pedantic fashion, the stale wisdom of those pedagogues in art. But beside this learned pedantry there grew wild a popular theory of criticism, and in it lay hidden the germs of a new theory of art.

We started with the fact that criticism is a matter of course. It appears always and everywhere, for it is an art of self-defence. When, nowadays, a work of art makes an all too powerful impression on us, we seize our pens and criticise it,—whether we reject it by urging as grounds for our dislike its ugliness and badness, or whether we try to escape from the spell of wonder that fell upon us at the sight of it, by analyzing the sources of its power. Without pens and without art, analysis has always

come about in precisely the same way. The listener criticises the tale that is told him; the churchgoer passes judgment on the new altarpiece; the dying peasant chooses from among various hymns his favorite for the funeral.

This inevitable popular criticism passes through three stages, which appear with peculiar distinctness in mediæval Germany. At first, the criticising is done wholly by the people; then, the artists themselves take the lead; and, finally, professional critics are developed. Corresponding to this, we find three stages in the choice of the point of view: the public directs its attention above all to the subject matter, the artists to the form, the professional critics—in this age in which the highest, all-embracing criticism has not yet been attained—especially to the philosophy, the tendency. “What does he offer?” ask listeners and spectators; “How does he do it?” ask rivals; “What does he aim at?” asks the reviewer.

This threefold criticism, then, holds true of the Middle Ages in Germany. And, remarkably early, an astonishing mastery and nicety are attained in the second stage, in the formal criticisms of the guild. We possess, in several cases included in poems, criticisms of contemporary productions; and though among the troubadours of Provence these have almost exclusively a personal, and often malicious character, in the case of the German Minnesingers, the pupils of the troubadours, the aim is chiefly one of serious and real analysis. The famous epic poet Gottfried von Strassburg, especially, has applied a searching and thoroughly technical criticism to the lyric and epic poets of his time. It is all the more valuable as a gauge of the older standards, for the reason that the countryman and contemporary possess, from the start, a just feeling for the interrelation of native artists and works of art; but it is, of course, onesided, like that of the ancients; for even Gottfried von Strassburg commands only a small part of literature, and frames his ideals from this fragment. Hence the poet, holding, as he does, strictly mediæval views, is as little just to the “Parzival” of his greater contemporary, Wolfram von Eschenbach (a poem in many ways very modern)

as is the greatest of all German critics, Lessing, to the "Werther" of the youthful Goethe. For all this, during the prime of "Minnesang" (which to be sure was "brief as woman's love," to use Hamlet's phrase), this mutual criticism was kept on a certain lofty plane by the fact that the critics were themselves poets and masters. But when "Minnesang" degenerated into mechanical "Meistergesang," this formal criticism also declined to a petty spying out of metrical and rhetorical blunders, and there arose that poverty-stricken zeal for mere forms, which Richard Wagner has satirized in the figure of Beckmesser in the "Meistersinger von Nürnberg." The criticism, however, of point of view and aim never attained such importance as did criticism of form in the time of Gottfried von Strassburg; it never passed beyond a narrow comparison of certain fundamental tendencies, as "religious" and "profane," or "polite" and "popular."

It remained poverty-stricken, too, when, in the degenerate times, from the thirteenth to the end of the sixteenth century, native criticism lost all sense of artistic form. Hence we find in that age only the two other forms of popular criticism. The clergy and their adherents watched with great zeal over moral tendencies, to be sure with little success, but with untiring diligence. They left this habit as a legacy to Luther and his disciples, to Gellert and his contemporaries, in fact, to Lessing and Schiller and Otto Ludwig and Julian Schmidt as well; a criticism of art that was independent of moral standards, Goethe and the Romantics were able to maintain only temporarily. Listeners and readers, too, took a lively interest in the content of the tales offered them, and maintained the tradition, which will never die with the uncritical public, of a criticism that does not concern itself with artistic form or with the artist's aim, but looks only at the subject matter.

The theory and criticism of art were in this condition in Germany, when Humanism and the Renaissance suddenly put before them a new and prodigious problem.

This problem was as follows: to bring the previous naïve views

into accord with what the ancient world taught, in practice and theory, as to the nature of art. It was a problem of immense difficulty. Its like had, and has never been, presented to another race. For the Romance nations had been influenced by the antique tradition to the very marrow of their popular poetry and criticism. For them the contrast in its full sharpness simply did not exist. It is true that the drama of Calderon or of Racine stood in the same relation to that of Æschylus and Sophocles as did the Spanish and French tongues to Latin; it was a new development, but it nevertheless remained always a development from the old germ. Classicism lies in the very blood of the Romance peoples, and the leaders of their literary revolutions, like Victor Hugo, have always vastly more kinship with the Latin authors than with those of the Germanic nations. On the other hand, to the Slavs and other younger races the ancient theory of art has always come in a German form, and with German modifications, so that here, too, the sharpness of the contrast is lacking.

Over against this, let us picture the situation in which a German humanist found himself. He had grown up as a child in the enjoyment of the pretty wretched poetry of Germany, and had heard it criticised only in respect to its content or its aims. Now the classic world rose before him,—not as she had risen before the earlier German scholars, as a venerable matron, of great authority, but still, in essentials, inspiring no warmer feeling than respect, but as a goddess of living beauty, whose splendor cast everything around her in the shade. The man who saw a formless art flourishing about him in legends and farcical tales, had at the same time to pay homage to an art in which form was conceived of as still more important than content and aim. The task might almost be compared to that imposed on the Germans, when the pious heathen of Saxony were to be made reverent Christians. But, in view of the nature of pagan religious feeling, how much easier was the latter transition than the former! A task was set the Germans whose enormous difficulty was to make them the masters of criticism.

At first men turned away in terror from the whole implication

of the problem. Native art was ignored, despised as barbaric bungling. How long a time elapsed before Gothic art was delivered by Herder and Bürger, by Goethe and the Romantics, from this contempt! But although the problem might be thrust aside, it wrought in secret,—tormented, charmed, and stirred. And, after two centuries and a half, the problem which had been set the Germans by the Renaissance became the occasion of the founding of a new criticism of art at the hands of Lessing.

Its preparation was a toilsome process. And it was from a very different direction that help and encouragement came to the criticism which (in Goethe's phrase) "was longing to be born."

The relation which Humanism and the Reformation bore to one another is familiar to all in the typical figure of Erasmus. The ancient and eternal opposition between the ethical and the æsthetic view of the world was disclosed at the moment when Martin Luther drew practical deductions from the views that even the Humanists had often cherished. Humanists and Reformers wanted to turn from the muddy stream back to the fountainhead; but the former had in mind the fountain of beauty, the latter that of truth. But for all this, the aim of both was the same, to clear a path across a land laid waste "by the dust and storms of many conquests," to deeper principles. Criticism was thus as urgent a need for Humanism as for the Reformation. And a Laurentius Valla achieved a feat in criticism when he recognized that Constantine's deed of gift of the estates of the Church to the Pope was a forgery, and thereby became a forerunner of Bentley and Niebuhr; like feats were wrought, too, by the leading philologists of the sixteenth and seventeenth centuries, who were bred by Humanism, as were Scaliger and Casaubon. But what do such isolated triumphs of criticism amount to beside the mass of criticism which the Reformation, as the daughter of the Renaissance, turned upon the Church and the religion of its time?

While Luther always tried to trace existing institutions to their sources, his method was rather polemical than historical; it was not enough simply to point out, at every departure of the Romish Church from biblical principles, the arrogance of the

popes and the greed of the cardinals. But it was, for all that, a noble beginning. For the first time, the attempt was made on German soil to apprehend a great historical phenomenon in a sound historical fashion. And in the effort to return to the sources, a fundamental problem of criticism dawned suddenly on the eyes of the Reformers: *what means is there of passing from the particular criticism of the individual to results that are universally valid?* And in order to answer this query, a scholar of Luther, Flacius, wrote his "Clavis" (1567), to which Dilthey has recently referred in an able essay on the "Rise of Hermeneutics." The most passionate, most unbending, most rigid of all orthodox Lutherans wished to establish the authority of the Bible against the Catholics, who trusted tradition, and against the fanatics, who trusted individual revelation. But both parties had stopped with isolated principles. Flacius advanced now to the demand, that any particular question must no longer be decided merely from the context of the passage in question, but from the whole context of the whole Bible. This enabled criticism to go far deeper. It is true that, for the time being, this new power remained almost wholly theoretical; but later it raised up, in Semler and Michaelis, the founders of modern biblical criticism, and the would-be founders of modern historical and literary criticism in general.

A new goal had been set, and a new method indicated. This latter was the more important. The sixteenth century saw the birth of the critical method.

At first, philology profited less by the new ideas of the time than did natural science, and, later on, literature. Galileo Galilei (1564-1642) was for two centuries the unapproached model of the method of explaining a single phenomenon from the totality of allied phenomena,—as Charles Darwin has been for our times. And on the great master of the critical method in natural science followed the great critics of the humanities. Two of the greatest geniuses which the critical method produced, extend to one another the hand; between them stands—much smaller, but more immediately effective—a third. Proud Spain, the land of

the Conquistadores, produced the great Cervantes (1547-1616), who took up with adventurous courage the struggle with his times, and, like his fellow countryman Columbus, gave civilized mankind a new world; for Cervantes, though he had predecessors, created the modern novel. Elegant, courtly France, the home of that mighty laughter Rabelais, and Francis I., the patron of Leonardo da Vinci,—France produced the splendid Montaigne (1533-1592), who, with so much grace, cast doubt on the most undisputed views of his time, without actually opposing them. Finally, England, now pressing boldly to the front, which had just laid under Queen Elizabeth, the virgin queen who was to give the name of Virginia to Washington's native state, the foundations of a wholly new sort of commonwealth,—England produced the greatest of all,—Shakespeare. Each of the three has helped prepare the way for the new fashion of looking at peoples and times. With Don Quixote, for the first time since mankind had begun to speak and write, a personality was presented in its full circumference, with a detail, with an attention to minute traits, such as Shakespeare himself, the greatest of all delineators of character, was not able to compass in the narrow field of a drama. And through this exceptional rounding out of the chief character, that greatest wonder of all, the eccentric nature of the hero, became intelligible. But this was not all. Since the most distant times, the epic has loved to put its heroic figures in a more brilliant light by setting alongside of them figures of broad comedy. As in the Homeric epic, we find Thersites and the beggar Iros, so the Edda puts beside the bold Hagen a trembling slave, and the Nibelungenlied a timid priest. But Cervantes transforms the technical device into a psychological revelation. Sancho Panza is ludicrous, but as secure and self-justifying in his own sphere as is his master. In our own days, Nietzsche has postulated the moral code of the master and that of the slave as two fundamental categories for our view of the world; Cervantes presents these with greater tolerance in Don Quixote and his squire. Thus the greatest novel in literature is a proof of what mighty progress the art of psychological

criticism had made, at least in the hands of a writer of genius. The Spaniard has here drawn, with firm hand, eternal types, and in every situation, at every moment, master or servant speaks, thinks, acts in the way characteristic of him. Montaigne, the first wholly modern author, frames an adroit and persuasive argument for sceptical tolerance. It is no accident that he was the first to call attention in convincing fashion to popular poetry, to the characteristics of uncultured peoples. This was done by Montaigne, who as child was forbidden to speak any language but Greek, who believed absolutely in the incomparable glory of classic art. It was the pupil of Plutarch who fulfilled the wish, formulated first and most emphatically by Germans, to be just both to antique and to popular art. This demanded precisely that inexhaustible delight of Montaigne in every manifestation of life, which makes him so modern; he did not, like earlier critics, aim at understanding in order to be able to explain; he aimed at understanding in order the better to enjoy. This made the sceptical son of the French noble and the Spanish Jewess the first writer of universal significance since the days of the apostles; he, in whose veins ran Semitic blood, was an ancestor of German Romanticism.

And, lastly, Shakespeare! It was Shakespeare who roused Lessing to his greatest critical feat in the domain of art. It was Shakespeare who led Herder and Goethe to their views of art. It was in his translation of Shakespeare that A. W. Schlegel attained his highest perfection, as did Tieck in his "Don Quixote." And why all this? Simply because Shakespeare is the crowning summit of a new art, of an art born of new principles,—a man so strong, so mighty, that he was able at last to shake the autocracy of classic tradition. Zeus says in the *Iliad* that though all the gods should lay hold of the chain, they could not drag him down from Olympus. All the great poets of the Middle Ages had in vain laid hold of the chain,—Wolfram von Eschenbach,—Dante himself. Shakespeare came, and Zeus was throned no longer in solitary majesty on Olympus.

Shakespeare's contemporaries did not see this. "Don Quixote"

had at once a powerful effect. The essays of Montaigne speedily crossed the Channel, and Shakespeare himself studied them zealously. The plays of William Shakespeare had a very fair success, and vanished; and German criticism first gave to the world, to his native land even, the full knowledge of his unparalleled significance. Countless German writers have tried to show what the new, the great element in Shakespeare's dramas was; Goethe, as we know, considered his discussion of "Hamlet" important enough to be interwoven in an important passage of "Wilhelm Meister." There are two writers, however, who have, as it seems to me, felt most strongly and expressed most clearly, the chief source of Shakespeare's power. These are Herder, the famous prophet of the classical literature of Germany, and Otto Ludwig, a bold and original thinker, a writer not as well known as he should be, and the most enthusiastic worshipper of the British poet.

The source of his power was this: with Shakespeare every drama forms a world by itself, rounded, complete, perfect. The views of life, the language, the technique and style, all are different in "Hamlet" from those in "Lear," in the "Merchant of Venice" from those in "Midsummer Night's Dream." Over each play lies an atmosphere of its own, whose effect is shared by every figure. The king, the soldier, the fool, the lover, receive a peculiar color in their carriage and their nature from the climate of the drama in which they appear.

In Shakespeare, too, there are as many worlds as there are great plays, and in each every figure, every action, almost every word, is indispensable, because they are in full accord with all the rest. Nothing is out of context. And thus we have here, in full artistic perfection, the idea of the *type*,—king, soldier, fool, lover,—and its modification by the varying *style* of the play. And we have this put before us in endless abundance. Shakespeare draws hundreds of figures. But he understands each one, by virtue of the penetrating glance of genius, in its connection, from its connection; and he teaches us to understand them. Thus the great poet carries the art of comprehension, an art that

grows in secret, to a height never reached before, save in the form of naïve poetic pleasure, not conscious method.

And, lastly, at the end of the great sixteenth century, stands the man who made the critical method the central point of his work,—Descartes (1596–1650).

The French literary historian, Nisard, who has celebrated the father of French philosophy with peculiar fire as the determining factor of modern intellectual progress, characterizes Descartes' greatest merit as follows: "He succeeded in thinking, without letting himself be influenced by that which he had thought." And he is only looking at the same feat of Descartes, from another point of view, when he says, "Descartes deposed authority from her right to decide concerning the true and the false, and restored this right to reason." Descartes wrote his "*Discours de la méthode*" (1637) in order to make clear to himself and others how substantial results of thought could be reached. If Flacius wrote his "*Clavis*" a hundred years earlier, to teach how the Bible was to be interpreted, Descartes, in his turn, wrote an introduction to a more certain knowledge of that greater Bible, which includes nature and all her phenomena. He taught that we must begin with absolute doubt; that nothing is to be assumed at the start as certain. Thus far, he is in perfect accord with his countryman Montaigne. But now comes the further step, that leads us beyond scepticism; we must find somewhere a fixed point for thought, and from here advance. This is the process of which every critical method is born; this is the process by which Niebuhr's criticism has advanced beyond Voltaire's scepticism, or Johannes Müller's scientific investigation of nature, beyond Schelling's natural philosophy.

It would take us too far afield to enumerate the other great examples of the gradual ripening of critical thought; yet the names of the philosopher of realism, Locke (1632–1704), and of the daring theological sceptic, Bayle (1647–1706), must not be left unmentioned. Between the dates of the birth of these two falls that of the first great virtuoso of the critical method, Richard Bentley (1662–1742).

Bentley is not unjustly regarded as the reviver of that discipline in which the critical method has obtained its most certain results, philology. His name is associated most closely with a feat which the learned Master of Trinity achieved at the beginning of his career. Sir William Temple, the English statesman and popular philosopher, had taken part in the famous dispute between the "ancients" and the "moderns." This dispute, which the brilliant Fontenelle and the original Perrault had begun in France, was in itself a significant sign of the development of the critical spirit. What courage must it have demanded to question the almost undisputed dogma of the superiority of the ancients! Fontenelle and Perrault were not as yet able to solve the great problem of how to do justice both to classic and to "barbarian" art. That they, however, resolutely sacrificed the classic ideal to the dilemma, at a time when modern art was always the victim, was a deed so bold, so paradoxical, so rousing and stimulating, as was later Rousseau's rejection of civilization and praise of the savage state. Hence Perrault's position called out passionate protests. Sir William Temple thought himself called on to take the field for the outraged honor of the classics. In every field, he held, the ancients were superior to the moderns. The moderns were especially proud of their skill in letter-writing; and with reason, for it was the age of Madame de Sévigné. But Temple rejoiced that, on the contrary, letters had never been written so full of wit and power and individuality as those of the tyrant Phalaris of Acragas, the modern Girgenti in Sicily. But these alleged letters of Phalaris, of whose great antiquity Temple had no doubt—Phalaris the cruel owner of the brazen bull in which human beings were roasted until they bellowed like bulls, and who was supposed to have lived in the sixth century B. C.—are unhappily late forgeries. Richard Bentley proved this irrefutably in his treatise on the letters of Phalaris (1698). Since that date, there has been a critical philology.

What was the novelty? The genuineness of documents had been disproved a thousand times. In ancient, as well as in biblical literature, there were numerous writings which were plainly

wrongfully ascribed to this or that author, and the critics of antiquity had long ago used their critical powers in this field. Wherein was Bentley's achievement different from theirs? Assuredly not in the importance of the subject matter; the question, for instance, whether the five books of Moses were written by Moses is far more important than the question, whether Phalaris composed these letters or not. The difference lay in the method. Hitherto the eye had been fixed on details, which, to be sure, were often enough decisive, and whole works or single lines had been denied to a poet on the ground of his use of words, of his meter, of his spirit. Bentley was the first to treat a work as a whole, to show that it could not belong in the connection in which it had been placed, and to assign it to the right context. It was, however, only the least triumph of the Master of Trinity that he made use of all the sciences in a fashion unknown before,—even of numismatics, a science which was not again recognized and used as a valid aid to history until Mommsen. Much more significant is it that Bentley began with a wide survey of ancient literature and its chief phases, and from this, as starting point, arrived at the conviction that the letters of Phalaris must be a forgery, the work of sophists; a conviction that he then proceeded to establish. In other words, the dissertation of Bentley was the first great example of *critical feeling for style*. His biographer, Jebb, says, most justly, "Wolf's inquiry into the origin of the Homeric poems, Niebuhr's examination of Roman legends, are the efforts of a criticism to which Bentley's dissertation on Phalaris gave the first pattern of method."

Fifty years later, the critical spirit won another noteworthy triumph. The weighty question, whether the Pentateuch was written by Moses, had long exercised men's minds. A French physician and naturalist, Jean Astruc (1684-1766) drew up "Conjectures sur les mémoires originaux dont il paraît que Moïse s'est servi pour composer le livre de la Genèse" (1763). Astruc, who believed in the authorship of Moses, did not, nevertheless, close his eyes to the fact that in Genesis remarkable differences of style are evident. He ascribed these to the original

documents which the great lawgiver had used. He distinguished two sources in particular, in one of which God is called by the singular Yahve, in the other by the plural Elohim. To-day, the second appellation is regarded as the elder, pointing back to a polytheistic age; in the former is seen the new name of the one God of Israel. But even to-day the discovery of the sharp-witted dilettante is a fundamental tenet of biblical criticism.

We see, then, that what at first was only discerned dimly by individual genius, became gradually common property. The eighteenth century is thoroughly critical in its temper. Its greatest and most influential writer is a critic,—Voltaire (1694-1778); its most important philosophers are critics,—the Englishman Hume (1711-1776), who subjected the fundamental concept of causation to a profoundly sceptical investigation, and his follower, the German Kant (1724-1804), who also embraced and gave new depth to the work of Descartes, and answered the question how far we can know anything at all of things in themselves, with grand self-renunciation. The philologists are critical in their tendency. The theologian Semler (1725-1791) begins the systematic criticism of the Bible. The Encyclopædists aim at furthering criticism. The whole order during the reign of Rationalism is practical criticism. This fundamental mood of the time often passes into scepticism. A popular author of the epoch, Sterne (1713-1768), dresses up the smiling scepticism of Montaigne in sentiment; while in the hands of the fierce Swift (1667-1745), on the other hand, satire becomes the destroyer of all faith in ideals, those eternal lodestars of the human race.

But the new art was not born of negation. Enthusiasm must be added to criticism, the courage of progress to the courage of doubt. Kant is the incarnate expression of the critical spirit of his time and land; yet, at the same time, I believe that his immediate influence on the masters of criticism in the scientific and æsthetic fields has been overestimated. Lessing, who was wholly independent of Kant, and Herder, who stood in violent opposition to the author of the "*Kritik der reinen Vernunft*," have assuredly had more pedagogical influence in these fields than the philoso-

pher of Königsberg. Even Schiller, whose criticism has unmistakably reaped much profit from Kant's "*Kritik der Urteilkraft*" (1790), had previously, nevertheless, been so strongly influenced by Lessing, that we can by no means conceive of him as a mere disciple of Kant in æsthetics. Still more exaggerated is the estimate of the influence of philosophy (I may be allowed to remark in passing) on the Romanticists. Their fundamental views, from which sprang also Fichte's and Schelling's doctrines, find full and immediate expression in the æsthetic theory of Schlegel and Novalis. Hegel has, it is true, influenced the æsthetics of F. T. Vischer, and the doctrinaire criticism of Germany down to our own time, but he found the critical spirit already fully developed, and has himself sprung from its school. The *spirit* of the epoch of such men as Voltaire, Hume, and Kant promoted greatly the use of the critical method in history and art; but Kant himself is, I repeat, only a great exponent of this spirit. Even the best barometer does not make the weather; it only makes it known.

Like a prophet of the new science, Gianbattista Vico (1688–1744) stands before us, the enthusiastic man of genius, who first applied the conception of organic development to the whole history of mankind. Vico proclaimed the principle, which in our days Haeckel has reasserted, of the "fundamental law of philogenesis," which, long before Haeckel, Lessing and Herder had made known in Germany,—the principle that the development of the whole runs parallel with the development of the individual. Vico applied the typical stages in the development of a human being,—childhood, manhood, old age,—to nations. This brought to view a typical character in races and times: this race is, in this or that period, in the state of old age; that race has never advanced beyond childhood. There was further seen to be a definite style for every epoch, not merely of speech, but of mental attitude; the child thinks differently from the man, old age has its own fashion of conceiving of things. From this as his starting point, the eloquent Italian succeeded in presenting an at once original and profound solution of the old problem:

classic art and the popular art of the "barbarian" ought both to have justice done them. How does Vico solve this problem? With the simplicity of genius he proves that ancient art is itself a popular art, one hedged in by national limitations, in a certain sense a barbarian art. Hence his immortal book, "*Principi di una Scienza nuova*" ("Principles of a New Science"), reaches its climax in the discovery of the "real Homer," that is, in the assertion that Homer was not an individual, but a concept, a collective concept for the Hellenic poets of a certain epoch; that the popular spirit was the real creator of the *Iliad* and the *Odyssey*. With this, the conception of popular poetry was revealed for the first time in its whole depth. But with this, too, the *Iliad* and the *Odyssey* were robbed of their unique character; they were now only the perfected type of a definite kind of poetry, one that in theory might be looked for everywhere. For if every people has its childhood, and in this period composes in the style peculiar to national childhood, a sort of Homeric poetry must be found everywhere.

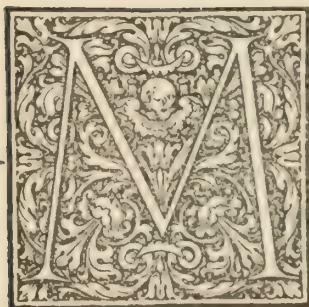
Vico, says Karl Werner, forms the transition from Bossuet to Montesquieu, from the theoretical to the purely human philosophy of history. But how much deeper does his great conception of historical wholes go, than the clever but superficial distinction of a few political types in Montesquieu's "*Esprit des Lois*"? It is no accident that Germans,—Goethe the poet, Johannes Müller the historian, F. A. Wolf the philologist (as, indeed, Karl Werner points out),—first called "the attention of civilized Europe to Vico's achievements, and emphasized their significance for the history of the human race." For nowhere could the solution of the riddle have so powerful an effect as in Germany, since nowhere was the schism felt so acutely as among the orthodox Germans, who hold so fast to tradition, and welcome with such passionate eagerness what is new.

[TO BE CONTINUED.]

HISTORY AND METHOD OF THE SCIENCE OF RELIGION

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[CONCLUDED FROM APRIL NUMBER.]



ERE analogies and *a priori* considerations will not enable us to anticipate the results of a scientific investigation of the facts. The important question raised by the identification of magic with religion is whether the attempt to get at a definition of religion by a mere consideration of outward rites and ceremonies, however primitive, is scientific. The method which starts by accepting the rough, popular classification of certain rites as religious is in the long run felt to be unsatisfactory, e. g., by those who find eventually that it excludes ceremonies (magical) which they feel it ought to include. On the other hand, to justify the inclusion of magic under the head of religion (or religion under that of magic), some proof of the identity of the two is necessary. To this it may be replied that the proof lies in the facts themselves. Thus, the self-same rite or ceremony which would be proclaimed to be purely religious, if we knew it only as it occurs in one place or age, is shown by the Comparative Method to occur elsewhere under circumstances showing that it is indubitably magical. The sprinkling of blood, for instance, is an essential element in the worship of the gods, wherever the rite of animal sacrifice is practiced; and peculiar, mystic virtues are ascribed to sacred blood in many religions. But elsewhere the same magical virtue is ascribed to all blood

in rites with which the gods have nothing to do and even by peoples who may have no gods at all. Ceremonies which are demonstrably magical in their origin are taken up into the official ritual of a religion like that of ancient Rome; a whole organized system of magic, avowedly practiced as magic, may be the most important part of a state-religion such as that of Assyria. Religious rites, on the other hand, pass with equal facility and by similarly imperceptible degrees into magic; not only may the Lord's prayer be converted into a spell by being repeated backwards, or the consecrated wafer be conveyed away for purposes of witchcraft, but vain repetition may convert prayer into mere incantation, and the holy rite of sacrifice itself may become not merely a piece of unmeaning formalism but, as in India, a purely magical ceremony for enabling the worshipper to command the gods, as the sorcerer commands the slave of his lamp or his ring. Practices which to the modern mind are absolutely irreligious actually form part of the ritual of many gods. If we take as the irreducible minimum of religion that "loving reverence" without which, according to Robertson Smith, religion, in the true sense of the word, as distinguished from magic, cannot even begin, we must regard compulsion and coercion of the gods as irreligious. We may, indeed, perhaps get out of the difficulty raised, e. g., by the annual, forcible, physical expulsion of evil spirits, by insisting that they are *evil* spirits,—though there are evil gods, too,—to whom no loving reverence is due. We may explain away the fact that savages make and break their gods at will, by assuming that the savage only discards and dishonors what he thought to be the embodiment of a deity, when he discovers that it shelters no deity and may consequently be visited by punishment with safety. But the images of the gods are fettered as a part of their ritual; and at the present day sailors of the Latin race will abuse and insult at one moment the saints whom shortly afterwards they will adore, just as the savage will worship the very god whom he has previously scourged in his rage, or worshipped in compliance with a traditional form of worship.

Perhaps it may be said, however, that the whole of this argu-

ment to show the identity of magic and religion is vitiated by the fact that it necessarily assumes their difference in the very act of arguing for their identity; and that this assumption, this confession of the real truth, is as strong at the end of the argument as it was at the beginning. But the reply, in this form, does not seem quite satisfactory. The assumption is made provisionally and in deference to the popular notion, temporarily taken up by science as far as it will work, that religion and magic are different. Eventually, however, with the progress of science, it becomes clear that it will not work, that it is impossible to divide rites into two separate groups, one magical and one religious, inasmuch as the same rite may be regarded as belonging to one or other or both of the groups, according to circumstances. If, indeed, a rite ceased to be magical when it became religious, or ceased to be religious when it became magical, we might perhaps maintain the absolute distinction between the two. Now, in many instances, this is undoubtedly the case. Any outward act may be performed from very different motives in different cases: long prayers may be made for a pretence, charitable gifts for purposes of advertisement, and acts of worship may be punctiliously performed from mere conventionality or even to deceive. If the moral value of an act depends on the motive and frame of mind of the agent, so does the religious value. The means which we adopt to attain a given end may or may not be adequate for our purpose; and the same means may be employed by different persons for very different ends; but it is by reference to the end and the motive that we classify the act.

From this point of view, then, it is obvious that mere external inspection of an outward rite or ceremony cannot tell us what value to assign to it, or in what class we are to place it. A ceremony originally performed with one intention may continue to be performed for generations after its original significance has been forgotten, and may be celebrated with an entirely different meaning read into it. The same rite, therefore, may in one age or place be religious and in another may be magical; the difference lies not in the outward gestures, but in the intent and frame of mind.

It is, therefore, not enough to show that the rites and ceremonies of magic and religion are in many cases the same. If we are to prove that magic and religion are identical, we shall also have to argue that the performance of the same external act always implies the same state of mind; but it does not; and, consequently, from the identity of many religious and magical rites we cannot infer the identity of magic and religion themselves. Still less are we entitled to take the motives which inspire the believer in witchcraft and magic, and say: that is religion! Again, it would hardly be said that the behavior of the sailor who dishonors his saint is an act of Christian religion. Why, then, should the action of savages who beat their gods be quoted as giving the essence of their religious ideas? Such physical coercion may be a fact, but the savage's "loving reverence" for his gods is also a fact. That is, however, no reason for confounding the two facts under the one name of religion. A child, in its passion, may scold and beat the mother whom at other times and usually it loves; but the scolding and beating are no part or outcome of filial affection.

Our conclusion, then, is that, if by "religious phenomena" we mean the outward rites and ceremonies, it is vain doctrine to say that it is from religious phenomena alone that we can find out what religion is, for the simple reason that the same rite expresses at different times different and even contradictory states of mind, and we require to know (what the outward rite cannot tell us); namely, which of those states of mind is, and which is not, religious. Further, it follows that as long as we are in this state of uncertainty, as to whether a given rite is or is not religious, we cannot possibly discover the origin or earliest form of religion; and consequently cannot enjoy any light which the origin might throw on the definition of religion. But it is now no longer an opinion so generally received, as it was in the early days of the Science of Religion, that the origin of a thing affords a definition of what the thing really is, or affects its validity. Let us assume that science proves man to have believed originally in magic, as distinct from religion; to have been consequently without relig-

ion at first; and to have glided by imperceptible degrees from magic into religion: then the passage of magic into religion may be as gradual as that from midnight to midday, but that will neither give us a definition of light nor persuade us that light is merely a superior form of darkness.

It is the usual, prudent course of science to start from the plainest, simplest, most certain, and most obvious facts and instances, and to work from them to the more difficult and obscure. So in the Science of Religion it seems a reversal of the ordinary and reasonable procedure to imagine that we shall succeed in defining religion, provided that we start by endeavoring to get our guiding ideas from phenomena with regard to which it is difficult or impossible to say even that they are religious. On the principle of arguing from the known to the unknown, the better method would seem to be to start from the form which is the most typical and characteristic of the species, whatever it is that we are examining, and classify as akin to it those lower forms which show most of its characteristics. In a word, we must define the thing by what it is capable of evolving into, rather than by what it is evolved from: indeed, we can only learn what it comes from provided we have defined it by what it is now. It is impossible to divest ourselves, as a preliminary to entering on the Science of Religion, of our previous knowledge of what religion is as it exists amongst us here and now; and to attempt to do so is as foolish as it would be for a biologist, seeking the origin of man, to begin by pretending that, for scientific purposes, his mind was a perfect blank as to what man is or how he differs from other species. It is because the biologist knows the physical structure of man to begin with, that he stands some chance of selecting from the multitude of lower types and organisms one which may be the original ancestral form of man. If he were absolutely ignorant of the meaning of the term "man," he would have absolutely nothing to guide him where to look for the ancestral form; and if it were pointed out to him, he could not tell *a priori* what sort of an animal it would develop into in the course of untold ages.

As a matter of fact, both in biology and in the Science of Religion, we do know what the subject-matter of our inquiry is as it now exists; and we have to bear it constantly in mind, if we are to establish any line of filiation, any chain of connection, between its present form and any other form which we may choose to select as the primitive and original form. This mode of procedure would doubtless be more fully and frankly recognized as the correct method, were it not that it is capable, and has had the misfortune, of being abused. There is a danger, not always avoided in the past, if we start with a definition of what is essential in religion, that we may confound the essential with the primitive, and distort the facts in consequence. We may fall into the error of imagining that because there are characteristics which religion, to be religion, must have had from the beginning, therefore, they must have been present in man's consciousness from its beginning. But obviously this is a question of fact. Investigation may show that those distinctively religious characteristics have always been characteristic of man's mode of thought and feeling. But, until this is shown by the facts actually to have been the case, we have no right to assume *a priori* that it must have been so. Neither have we any right to assume *a priori* that it cannot possibly have been so. If it is unscientific to assume, for instance, that primitive man must have been purely religious and absolutely ignorant of magic, it is equally unscientific to assume that he must originally have been wholly destitute of religion and given up entirely to magic. There is, indeed, nothing (in form) unscientific in arguing that because magical rites are demonstrably degenerations of religion or perversions of the religious instinct, therefore magic is a pathological variation of religion. But this does not prove (and is not meant to prove) that religion is chronologically prior to magic, for the tares and the wheat may have been sown together, or rather the instinct may have been subject to variation and perversion from the beginning; and in any case, this, like all other hypotheses in science, must be verified by facts before it can be accepted as more than a working hypothesis.

These reflections bring us to a consideration of the latest new departure in the Science of Religion, that taken by Mr. Andrew Lang in his "Making of Religion." This work carries still further the revolt from Professor Tylor's theory of religion as "the belief in spiritual beings," which has been steadily going on during the later years of the history of the Science of Religion. It is an attempt to recall the science from a *a priori* speculation to the study of actual facts. Assuming that man had originally no belief in a god, Dr. Tylor endeavored to show how out of a belief in spiritual beings belief in a god might by natural causes be evolved. Mr. Lang refuses to make any assumptions as to what man's original belief or want of belief may have been; he prefers to ask what are the facts. Amongst the lowest races and most primitive peoples known to us, do we actually find this absence, which Dr. Tylor assumes, of belief in a god? Briefly, Mr. Lang discovers that on the contrary it is amongst the lowest and rudest peoples that we find the clearest evidence of belief in a High God, a Supreme Being, a God who requires for his worship not sacrifice or offerings, but right-doing and compliance with his moral will. Whether this belief is original, and how man came by it, are questions on which Mr. Lang declines to speculate; he is content with the fact that it is the belief of the most primitive savages known to science.

It is not necessary for the purposes of this article to assume that Mr. Lang has proved his thesis; he has established a *prima facie* case for further investigation. The question for us here is as to what, if any, modifications he has introduced into the Science of Religion. In the first place, in his resolve to appeal directly to the facts, he has first ignored and finally come into collision with two assumptions which, rightly or wrongly, had ruled the Science of Religion, and determined the direction in which students had looked for the earliest manifestations of religion. One of those assumptions was that man could not possibly have started with a belief in a Supreme Being. The other was that religion and morality must have separate origins. The latter assumption, which is intimately bound up with the

fear-theory of religion, had in fact, if not in form, been assailed and considerably shaken by Robertson Smith. The unreasoning fear of hostile powers is no part of religion, but the worshipper's fear of his god's just resentment is "the beginning of wisdom," and "the fear of the Lord," in this sense, is possible only where justice and morality are ascribed to the deity worshipped. But whereas Robertson Smith based this conclusion rather on psychological analysis of what religion is, than on a detailed examination of the facts as they occur in the lowest stages of human culture; Mr. Lang has taken, or has attempted to take, the discussion out of the sphere of *a priori* speculation and has submitted it to the test of actual fact. He has also rendered the same service to science in connection with the *a priori* method of settling the question of a primitive monotheism. If early missionaries and inquirers took it for granted that some traces of a primitive revelation must exist somewhere, and that all there was to do was to find them somewhere, men of science have equally relied on *a priori* grounds for treating the matter as a "chose jugée," and it is not improbable that the demand for revision in this case may be as long and strenuously resisted by men of science as it was in the case of hypnotism.

In the meantime, the first serious reply to Mr. Lang,—that made by Mr. E. S. Hartland in "Folk-lore,"¹—shows that there is one preliminary, of great methodological importance, which will have to be settled before the discussion can proceed. Mr. Lang has appealed to facts. But, when we wish to ascertain the religious belief of, say, the native tribes of Australia, what are the facts which we are to proceed upon? We have seen that for a long time the Science of Religion was inclined to regard rites and ceremonies as affording the only evidence which science could recognize; and we have sought to show that, valuable though they are if they can be interpreted, they do not themselves afford their own interpretation; on the contrary, they are ambiguous, and if they appear to show, for instance, that religion

(1) December, 1898 and March, 1899.

is (or is not) identical with magic, they do so only because the identity (or inconsistency) is first tacitly assumed on other grounds. The question now arises, in connection with the "Making of Religion," whether myths afford any better evidence than rites.

Mr. Lang demonstrates that, in the instances he gives, the savage doctrine which teaches the existence of a Supreme Being, such as the Australian Pundjel, teaches also that he desires his worshippers to observe certain elements of morality. But, as Mr. Hartland points out, there are many native myths in which the supposed moral god himself behaves immorally. We may add that Mr. Lang in past years solved the problem of the "irrational element" in Greek Mythology by demonstrating that it could only have come into existence when the ancestors of the Greeks were savages and their gods accordingly behaved "as such." The more cultured Greeks probably did not believe in these gross myths, or interpreted them allegorically or mystically; and it is easy enough to understand that a myth may be repeated, just as a rite may continue to be practiced, long after its original meaning has been forgotten. Indeed, to the historian the value of many myths lies just in the fact that they are evidence not of what was believed by those who recorded them, but by the earlier generation that invented them, and by others still in the same stage of culture as the inventors. But when we get back to that early stage of culture, as we do in dealing with the Australians who tell the tales about Pundjel, are we to say that the myths do *not* express the belief of those who invented them? And if they do, what becomes of the morality of these High Gods of Low Races? Mr. Lang's reply seems to us to be the correct one: myths (or it would be enough to say, these myths) belong to the pathology of religion. They may be believed to be true by those who tell and hear them, but they are not religion, just as, to take our previous example, beating a god or insulting a saint is not religion, and beating a mother is not filial affection. Doubtless, the religious consciousness which tolerates these tales is not very sensitive, or perhaps is not in

very stable equilibrium, but passes from one extreme to another as speedily as a child. But it is not necessary for the purposes of the argument to assume that the savage is perfectly equable, severely logical, and absolutely consistent in his religion or in anything else. Nor is it fair to deny him credit for his better moods because he is liable to relapses.

We return, then, to the question of so much importance for the method of the Science of Religion, what are the facts from which we are to form our conclusions as to the nature of the religious belief of any given age and place? Mythology, we have seen, belongs to the pathology of religion; ritual, also, according to Mr. Lang was corruptive of early religion. The High Gods of Low Races neither demanded nor accepted sacrifice: it was ghosts and other spiritual beings to whom gifts and sacrifices were made, who could be influenced by presents and bribes to do the will of their worshippers, and who consequently in most cases became much more popular than a Supreme Being who required his worshippers to do his moral will. Where, then, are we to look for the religion of an early race, if it is to be found neither in what they do nor in what they say, neither in cult nor in myth?

It seems (to venture on a suggestion) unnecessary to push iconoclasm so far as to annihilate myth and ritual entirely for religious and scientific purposes. Some myths may be irreligious, but there is nothing inherent in the nature of a myth which compels it to be irreligious; a perfectly and purely religious sentiment and intention may use a myth as the vehicle for its expression. There are also rites religious and rites irreligious: a sacrifice, like a present, may, but need not be, intended as a bribe. The question which it is of importance to the Science of Religion to answer is, Is it impossible to distinguish religious from irreligious rites and myths? or are we to say that every myth of every kind is religious, simply because every myth is a tale about the gods? that every rite, because it is a rite, must be part of the religion of the man who practices it? The latter seems to be in effect what is affirmed by Mr. Hartland, when he treats the immoral and obscene myths connected with Pundjel as part of the religious ideas of the Aus-

tralian ; and by M. Marillier when he lays it down that magical rites are as justly to be considered a part of early man's religion as sacrificial and sacramental feasts are. But it seems strange to require us thus to believe that it is scientifically impossible for a myth or rite to be irreligious. Surely we are entitled to ask for some proof of this alleged impossibility. And will not any such proof necessarily require a definition of what we mean by "religious" and "irreligious"?

Then, whether we believe that all, or some, or no, myths and rites are irreligious, we equally require a definition of religion to start with. Mr. Lang suggests that those beliefs of early man are religious which are the germs of our religious belief. This seems to be quite in harmony with the principles of evolution : the object of the evolutionist is precisely to trace religion, as it is, back to the seed from which it has sprung, and to show the unbroken continuity between the earliest and latest forms ; and as we know the latest form best it is reasonable to use it to throw light on the earlier and more dubious forms. But it is also clear that, if this is to be the method of the Science of Religion in dealing with the morphology of religion, with the evolution of religion, and the succession of forms it takes, there must first be a scientific definition based on the psychological analysis of religion, as we know it. And this is the conclusion to which the history of the Science of Religion seems steadily to point : the mere outward ceremonies and forms do not enable us of ourselves always to penetrate to the underlying motives and emotions ; or, when they do, we still require some test whereby to tell whether what we reach is or is not religious, especially as the motives with which the same rite is performed by different persons are themselves different and even contradictory.

On the other hand, though the evolutionist hopes to demonstrate that the identity and continuity between religion in its earliest and in its latest forms, which he starts out to prove, do really exist in fact, still he is also at least as much concerned with the diversity of forms as with the identity of the underlying continuity. A history of religion which should neither say any-

thing nor show any consciousness of the fact that there are and have been differences between the various religions of the world would be no history at all. But, though such differences properly form part of the history of religion, they are not necessarily part of religion; they may be integral to the particular religion to which they belong, but not, therefore, essential to religion itself. Men do differ and have differed as to what is consistent with, or required by, their religion. Myths, which to the savage ancestors of the Greeks appeared to contain nothing inconsistent with religion, became offensive to the religious consciousness of their more civilized descendants. Human sacrifice, prostitution, *autos da fê*, have all been regarded as not merely consistent with, but required by, religion; indeed the evolution of religion consists largely in the discovery and realization of the fact that certain things are not even consistent with religion, which previously had been supposed to be required by religion. Are we, then, to say that the very things which have been rejected by religion in the course of its evolution, which the experience of the race has condemned as destructive of religion, are the germs from which religion derived its original vitality and power of life and growth? Surely they were from the beginning what they proved to be at the end,—something different from and ultimately irreconcilable with religion.

A large part—at times we may be inclined to think the larger part—of the history of religion is concerned with the pathology of religion. In the morphology of the subject, the student is primarily concerned with the forms, the words, and deeds, in which successive generations of men have felt themselves compelled to express their religious feeling. In many cases it is absolutely indifferent to science whether the form really expresses any religious feeling at all, provided that it either has expressed, or may come to be used as the expression of, such feeling. Hence, it has come to be supposed that morphology constitutes the whole of the Science of Religion, that science has to do only with the forms, and can actually classify and order them without knowing what religion is, and consequently without knowing whether a

given rite or myth in a given case is or is not religious. But even if it were possible to maintain this assumed ignorance throughout our morphological investigations, that would only show that those investigations do not constitute the whole of the Science of Religion. As a matter of fact, however, the history of the Science of Religion shows that the investigator with the most honest and single-minded desire to confine himself to the outward forms and objective facts, is eventually compelled to postulate, even if he does not explicitly formulate, some definition, on the strength of which he claims (or refuses) to regard magic or angry insults to a god as acts of religious devotion. It is when we come to ask what was the origin of religion as a matter of fact,—a question which certainly belongs to the morphology and evolution of religion,—that these difficulties become pressing. A rite or myth which in its origin is demonstrably non-religious, may be taken up by religion and used for its own purposes; it becomes part of religion, but it is not, therefore, the source or a source of religion. But if the rite thus taken up is a piece of magic, we cannot say whether it was or was not a germ of religion, as long as we do not know whether magic is or is not, for scientific purposes, religion, and do not even know what the scientific definition of religion is.

The Science of Religion, then, seems now to have reached a point, a turning-point, in its history, when it can proceed no further without a scientific definition of religion. The study of the evolution of myths and rites—the outward manifestations and expressions of religion—does not of itself suffice to tell us what religion is: on the contrary, that study itself is brought to a standstill for want of an authoritative definition of what religion, for scientific purposes, is. For the framing of such a definition, the morphology, the study of the outward forms of religion, provides invaluable material; but for the meaning and interpretation of these materials psychological analysis is indispensable. A definition to be scientific must be based on the facts,—in that sense, it is true enough that it is only from religious phenomena that we can tell what religion is,—but the outward forms are not the

only facts that have to be taken into account. The student must, indeed, know all that the external manifestations can tell him, but he must also seek to know that which is within, and for that end one condition is that he must "look in his heart, and write."

Doubtless the application of the psychological method will be resisted, and probably on the ground that it cannot be applied without prejudging the question whether religion is truth or hallucination. But we have seen that science is essentially agnostic, that as long as it is science it does not know and cannot tell at the end any more than at the beginning of its investigations whether there be any God. If, therefore, the application of the psychological method should result in a definition which affirmed the existence (or the non-existence) of a God, the truth or the falsity of religion, then that definition, however true it might be, would certainly be unscientific, and, consequently, of no use to the Science of Religion.

On the other hand, unless we are going to say that acts of devotion are performed with a blank unconsciousness, in the mind of the devotee, of what he is doing, or what he means, or what he desires, we must admit that his state of consciousness, being a state of consciousness, is so far part of the subject-matter of psychology, and as such is subject to scientific observation and analysis, retrospectively at any rate, however repugnant the process may be. But what renders introspection and retrospection alike of any scientific value is the assumption, essential to the science of psychology, of the uniformity of human nature: observation of our own mental processes would be useless if we did not believe that they gave us the clue to what other human beings experience under similar circumstances. It is, therefore, difficult to imagine on what scientific grounds we can be forbidden to take our own spiritual experience as a clue to what prompts and has prompted other men to the outward acts of religion. But though there is nothing in this process inconsistent either with science or common sense, it is fatal to the theory that religion is something abnormal, anomalous, aberrant, for it assumes that the

psychical nature of man is uniform in this as in other respects. But the evolutionist who believes in the continuity of religion throughout all its forms, from the highest to the lowest, has already assumed this particular uniformity in the psychical nature of man,—whether he sees the lowest in the highest, and defines religion as currying favor with a dreaded spiritual being; or whether he sees the highest in the lowest, and defines it as loving reverence for a known God. There is, therefore, no reason why the evolutionist should on this ground dispute the legitimacy of the psychological method, or denounce it as necessarily prejudging the question as to the truth or the falsity of religion. All that the psychological method does is to make us realize that religion cannot be an “hallucination” in the ordinary sense of the word, in which it means a delusion due to abnormal causes peculiar to the individual case. A belief, of course, may be universal and false (e. g., the belief that the sun “rises”) but a false inference is not what is meant in science by an “hallucination.”

The fact that religion is part of the uniformity of nature, that, as a psychical phenomenon, religion belongs to normal and not to pathological psychology, may serve to remind us that psychology is not confined to introspection or retrospection for its materials. What we learn from those sources has to be confirmed, or corrected, by what we can learn of the similar experiences of others, before it can be accepted as a truth of science; and everything which the human spirit produces, or in which it expresses itself, may be used as material from which to draw psychological inferences. Thus, all the facts which the morphological study of religion can establish will rightly claim to be taken into consideration by the psychological department of the Science of Religion. But ultimately every definition and every law in psychology must be verified by each inquirer for himself and by reference to his own experience, for the simple reason that it is only in the observation of his own mental states and processes that he comes into direct contact with the facts. What he learns from observation of the words and deeds of others is matter of inference, and not of

direct observation. This by no means amounts to saying that every one is equally capable of framing a definition, or even of accurately observing what goes on in his own consciousness; it means simply that every one must and will inevitably test any statement placed before him by reference to his own experience. It is by the consensus of trained observers that any and every law of psychology is admitted or rejected as a truth of science. The evidence for the laws of the association of ideas, for instance, is simply the fact that all competent observers find that those laws hold in their own experience. A student who could honestly affirm that he could not understand from his own experience what "association" meant, or what "ideas" were, would be very disadvantageously placed for a prosecution of the study of psychology. Perhaps, too, the devotion of some students to the morphology of religion, and their aversion to any appeal to psychological analysis, may be due to a feeling that they cannot constitute psychology as the final court of appeal without excluding other students who are not conscious of any religious experience amongst their own mental states, and, therefore, have not this means of testing the accuracy of suggested definitions, but who, nevertheless, by reason of their very independence of religious prepossessions, are most valuable colleagues.

Be this as it may, the psychologist must necessarily be largely concerned with the religious experience of others, as they have deliberately communicated, or unintentionally betrayed, it to the world at large; and he will naturally seek to study the phenomenon where it is most prominently and strikingly displayed, i. e., in what is recorded of the spiritual experience of the great religious reformers of the world. In this method of procedure he again has the countenance of the evolutionist, who is coming to see that to know what a thing is we must study it in its most characteristic and typical developments, and then, in the light of the knowledge thus gained, proceed to deal with the less developed and more ambiguous forms. It is just so far as these less developed forms do present, though in a less marked degree, the characteristics typical of the most developed forms, that he will allow

them to be religious. But if we thus go to the great religious minds of the world's history, to the founders of the great religions, we shall probably find that what religion actually was to them, is to their followers a lofty if not unattainable ideal. Thus the ideal at which religion aims may prove the best definition of religion, and the evolution of religion will thus be seen to be the progress made by man towards the attainment of that ideal. Indeed, if we once grant the principle that religion, or anything else that has been evolved, is best studied and defined in its most perfect and developed form, it follows that we must define all the lower forms by what they tend or strive to become, by the goal for which they are making, rather than by the source from which they spring.

In thus proposing to take the ideal as the test and the definition of religion, we may seem to some to be deserting science for philosophy. To this we might reply that the Science of Religion is one of the philosophical sciences: the methods of the exact sciences, which deal with phenomena capable of precise measurements, and, therefore, susceptible to the application of mathematical conceptions, cannot be identical with the methods of sciences which deal with phenomena that cannot be weighed or measured; and the attempt to transfer *en bloc* the conceptions and methods of the exact sciences to the Science of Religion can only result in the use of misleading analogies. Some relation, however, between the natural and the philosophical sciences there must be,—some community of method and object,—inasmuch as both are sciences. One such common feature is that both deal with tendencies: all the laws of all the exact sciences express not what actually happens in the world of concrete facts, but what tends to happen. *The law of gravity states not that all bodies do fall to the earth at a certain rate, for none do fall at the rate specified in the gravitation formula, but that they tend to fall at that rate.* We shall, therefore, be following a principle common both to the natural and to the philosophical sciences, if we define religion in terms not of what it is, but of what it tends to be.

In the next place, we have seen that what the Science of Relig-

ion, throughout the latter years of its history, has desiderated more and more, is a test whereby to distinguish what is religious from what is not. This need has been first and most pressingly felt in the case of the lower and more ambiguous of the forms in which religion has been supposed to manifest (or not to manifest) itself. It is obvious, however, that the need is just as real in the case of the more highly evolved forms which exist at the present day. We cannot make them their own test; we must estimate them by what they tend to be, and we must have an ideal to judge them by.

Again, in the application of the principles of evolution to the scientific study of religion, the use of some such test as that which we have indicated is constantly, if unconsciously, implied and acted on, even by those who may be tempted to repudiate it when it is explicitly formulated. The possibility of retrogression, for instance, is one which the Science of Religion, like biology, has frequently seriously to consider. But the very idea of retrogression implies the existence of a standard by the aid of which science determines whether a given movement is in the direction of advance or not. The use of such terms as "higher" and "lower" forms is constant and inevitable in the Science of Religion, and implies a reference to some standard, or tendency, or ideal; for "higher" cannot mean simply "later in time," for the simple reason that retrograde forms are later in time than the forms from which they are degenerations.

The unity of religion under all its multiplicity of forms, and its continuity through all forms from the highest to the lowest, are postulates to which the Science of Religion commits itself by employing the Comparative Method. A definition of religion, to be scientific and satisfactory, must state wherein that unity and that continuity consist. Hitherto it has been taken for granted that this end would be attained if we could state what all religion is; and the data used for this purpose have been the modes of action and the intellectual conceptions which men have thought that their religion required. I submit that this method is neither practicable nor legitimate.

The whole process of the evolution of religion consists in the repeated experiments which men have practically, though not designedly, conducted to find out what is really required by their religion; and the path of progress is strewn with rites and creeds and modes of thought and action which have been cast aside, because on experience they proved inconsistent with the demands of the religious consciousness. The beliefs and actions which men have considered to be required by religion are so patently and notoriously contradictory of one another, that the attempt to discover something common to them all, something in which they are all agreed, is foredoomed to failure.

But not only is the attempt impracticable; it is manifestly unscientific. It is exactly as though, in order to discover the real law of gravitation, we were to measure the different rates at which a great number of different objects fall to the ground, and were then to take the average rate and present it as the proper gravitation-formula. Indeed, the case is really worse, for if our definition is to take account only of what religion is, and not of what it tends to be, it must only include what is actually present in the most rudimentary form of religion known to us, in which case the most perfect and most highly evolved form must consist mainly of what is not included in the definition, i. e., must consist mainly of what is not essential to religion.

This idea, that the only scientific definition of religion is that which takes religion at its minimum, or rather at its vanishing point, is, doubtless, historically connected with the fact that at the beginning of its history the Science of Religion was influenced by the then current preconception that religion is a purely intellectual affair. On that assumption it did not seem an impossibility to find some formula, which if sufficiently colorless and abstract, might apply to all religions. But whether religion was defined as a sense of the Infinite, or a consciousness of the Unknowable, or a belief in spiritual beings, they all failed to express the fact that religion in all its forms impels to action and does not exhaust itself in making myths and speculations. The reaction from this extreme was due to the increasing attention

attracted by the cults and rites of early religion and by the importance of worship in all religions. This new point of view is exemplified in Dr. Menzies' definition of religion as the "worship of unseen powers from a sense of need."¹ But even this definition, dealing as it does with the outward manifestations of religion, and seeking to comprehend them all under one formula, is necessarily external and insufficient: it limits the outward expression of religion to something analogous to church-going, and excludes from the religious frame of mind all other motives and emotions except that of need. Professor Tiele, again, would sum up the essence of religion in the single word "adoration." But even if we were to grant that every kind of adoration was religious, even if we allowed that adoration indicated the presence of religion and was its invariable co-existent, it may be doubted whether it is the essence of religion, and not merely an indication: it tends to drop the practical, as much as the intellectual aspect of religion, in favor of mystical ecstasy.

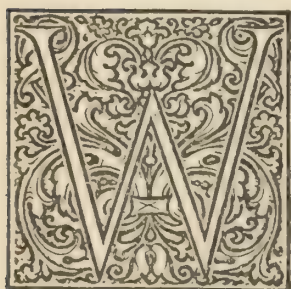
It is no part of the business of this paper to produce a definition of religion; but, to be frank with the reader, the idea that has been present to me in suggesting that we must define religion and the movement or evolution of religion, by its ideal, by what it tends to be rather than by what it is, or has been; and that we must go for that ideal to the founder of a great religion, is that whatever makes or has made for the love of God and man, is religious, that whatever makes for the contrary, is not.

(1) Allan Menzies, D. D., *History of Religion*, 1895.

THE PRINCIPLES OF MODERN DIETETICS, AND THEIR IMPORTANCE IN THERAPEUTICS

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INTRODUCTION : DEVELOPMENT OF DIETETICS.



WHEN, about thirty years ago, the wonderful discoveries of Pasteur, Semmelweiss, and Lister began to make their powerful influence felt upon practical medicine, it was surgery that received the first benefits. Under the protection of methods which combat or prevent (antiseptis and aseptis) the entrance of harmful microbes into wounds, surgery and the related branches of operative medicine (gynecology, ophthalmology) reached a degree of efficiency not dreamed of before. The therapeutic successes were so brilliant that the performances of internal medicine, not only in the opinion of laymen, but even in the eyes of many physicians, were thrown into the shade. Young physicians who, like the author, in the seventies of the century just ending, heard the clinical lectures of the most celebrated instructors, received, from what they saw and heard in the clinic, the impression that, while internal medicine might indeed offer a fruitful field for interesting scientific problems and for penetrating diagnosis, it was, nevertheless, with respect to therapeutics, with rare exceptions, powerless, and incapable of further development. Its actual successes were undervalued, for they seemed all too petty when compared with the triumphs of surgery. The question of its further advance seemed to depend merely on the possibility of finding

new medicines, which would prove powerful against certain particular diseases; for example, such as quinine against malaria, or salicylic acid against articular rheumatism. When we consider the enormous number of new medicaments which have been cried up during the last thirty years, and the compass which the literature devoted to them has assumed, it might seem as though internal medicine had, in fact, in recent decades, looked upon the building up of the pharmacopœia as the problem of most importance. Nothing could be farther from the truth; on the contrary, shrewd physicians have, for a long time, clearly seen that the unchecked race after these new medicines, so favored by the chemical industry, has brought very little good, has been unworthy of true science, and has been most harmful to the reputation of internal medicine.

The true progress of internal therapeutics lies in other fields. One of these is bacteriology. While this science, until a very few years ago, contented itself with purely theoretical successes, and was authoritative at the sick-bed merely as ancillary to diagnosis, it now begins to be of weight in the treatment of the sick (serum-therapy). The powerful impression of the magnificent victory which the young science achieved in the treatment of diphtheria no man can escape who has eyes, and is willing to see. How far bacteriology will lead us in preventing and combating infectious diseases, we cannot yet predict. We are confronted at every step with the signs of its progress, and unless all indications deceive, it will render us such services in combating some of the most dangerous internal diseases (the bubonic plague, for example,) as will not be eclipsed by any of the therapeutic achievements of the past.

The second field in which internal therapeutics has forged ahead, slowly at first, and later with quickening pace, is dietetics. The dietetic treatment of internal diseases is as old as the whole medical art. Even old Hippocrates, the "father of medical science," was deeply impressed with its importance. Unfortunately, no part of the writings of Hippocrates were so little taken to heart and understood by his followers, in ancient and mediæval

times, as his aphorisms on sick diet, which are good reading to-day. Although much was spoken and written on the score of dietetics by physicians in the period after Hippocrates, we may affirm that, until far into modern times, no actual advance was made. Very unclear ideas were held as to the specific action of different foods, and—what seems to us ridiculous to-day—solemn debates were held, for example, on the question whether a fever patient should be given oatmeal gruel along with barley gruel; some argued in favor; others saw in this a serious professional error. Only in the time of Sydenham, in the seventeenth century, appear again those practical theories which stand on the sensible foundation of experience, and lead back a dietetics, which had so long gone astray, to the point of view maintained by Hippocrates. But Sydenham's influence was not of long duration. The literature of the eighteenth, and the early part of the nineteenth, century is full of doctrinaire discussions about dietetic details, without displaying real progress, or new points of view. And yet, we ought not to speak too contemptuously of these tedious and unfruitful debates, for even the physicians of those times were, in the main, conscious that they possessed in dietetics a powerful weapon for combating internal diseases. They could not, however, attain to clear experiences and ideas as to the value and extent of dietetic treatments, because the most necessary scientific principles were still lacking. These appeared only in the course of development of the exact natural sciences, especially the analytical and physical chemistry, experimental physiology and pathology. Acquaintance was gained with the chemical constitution of foods, on the one hand, and of the fluids and tissues of the body, on the other. Investigators studied the changes in the food from its entrance into the body on to its exit; they obtained definite knowledge as to the quantity of nourishment that was necessary under physiological and pathological conditions. There arose a special branch of physiology,—the theory of metabolic phenomena, which became the necessary foundation for a rational dietetics for the well and for the sick. Among the many names connected with the scientific foundation of the modern theories of nutrition, that of Justus von

Liebig stands before all others. On foundations created by him, the subject has been carried on by Carl von Voit, Tiedemann, Gmelin, Bischoff, Bidder and Schmidt, Pflüger, Hoppe-Seyler, Rubner, and many others. Practical medicine has followed step by step the advances of physiology. Beginning in the sixties and seventies, advancing rapidly in the eighties and nineties, and supporting observation at the sick-bed with its own scientific labor and investigation, it has added to the physiology of metabolism the pathology of metabolism, the further development of which will occupy generations of investigators.

We find, nowadays, everywhere among physicians the effort to use the results of the principles of metabolism in founding and developing a rational dietetics. Experience has shown how great is the benefit we may expect from this for the sick. Nearly all the advances which the science of medicine has shown during the later decades in the treatment of internal diseases are to be attributed to the development of dietetic therapeutics; only with its help has it been possible to rescue the therapeutics of internal diseases from the stagnation into which it threatened to fall. Not only the scientific labor which has been devoted to modern dietetics, but also the therapeutic success attained, have given to the new branch a worthy place by the side of the most brilliant achievements of other branches of therapeutics, as, for example, that of operative surgery.

It is not the aim of this paper to describe dietetic therapeutics exhaustively, nor even in outline—that would belong to the province of a text-book of medicine. On the other hand, I wish to show the reader how closely modern dietetics depends on the methods of research in the exact sciences, on chemistry and physics, on experimental physiology, and on experimental clinical research. This is the characteristic feature of modern dietetics; this is what differentiates it from the dietetics of previous generations, which, without the safe guidance of science, possessed, indeed, numerous special prescriptions, but lacked rational methods. Dietetics has stepped out of the shoes of childhood, and has itself become, in fact, one of the exact sciences.

Even yet, we are very far from having discovered a rational

dietetic method for all diseases of the whole organism, or for particular organs; for many diseases we shall perhaps never find this, since there are many ailments, the course of which is entirely independent of the kind of nourishment taken. In the case of many other diseases, however, we are in possession of very valuable, practical, well-tested methods; but their scientific foundation is still very inadequate. But for certain pathological disturbances, the method of dietetic treatment follows from our knowledge of the processes of food change with the convincing rigor of a logical conclusion.

If I am to carry out my purpose, and in the narrow space at my disposal, make the reader acquainted with the methods of work and the progress of modern dietetics, and with the influence of dietetic treatment upon the course of diseases, it must be allowed me to make a selection from the material at hand, and to emphasize only those portions that are suited to a larger circle.

I. OUR FOOD.

A. GENERAL VIEW OF THE COMPOSITION OF FOOD.

In human food the following elements are to be distinguished:—

I. *Organic substances*, which are of a nature to enter into, and become a part of, the body, or by oxidation to become sources of energy, and serve to keep up the supply of heat and to support the muscular activities of the body. The most important representatives of this group are albumen, fat, and the carbohydrates. Besides these, certain other substances appear in foods, which are burned up by the tissues, and therefore are to be characterized as sources of force and as true foods: vegetable acids, such as acetic, malic, and citric acid, and alcohol.

Albuminous substances are found in all animal and vegetable tissues. No cell without its albumen! In animal food is found, on an average, much more of albumen than in vegetable food. For example, we find:—

In butcher's meat . . .	16 to 21 %	albumen.
In eggs	11 to 13 %	“
In milk	3 to 4 %	“

Among the vegetable foods, the leguminous seeds (peas, lentils, beans) are comparatively rich in albumen, then follow the grains, and then, at a great distance, tubers, roots, stems, salads, and fruits. For instance there are in:—

Ripe, dried peas	22 to 24%	albumen.
Ripe, dried wheat grain	12%	“
Bread	6 to 8%	“
Fresh, green peas	6 to 7%	“
Carrots	1 to 1.5%	“
Salads and greens	2 to 4%	“
Fruits	1 to 2%	“

The food fats come, likewise, partly from the animal kingdom and partly from the vegetable kingdom. To the animal fats belong those in milk, cream, butter, cheese, etc., (butter fat), the fat of the yolk of eggs, and the fatty tissues of animals. The vegetable fats originate chiefly from the seeds and hulls of certain plants, such as olive oil, sesame oil, rape oil, linseed oil, etc., and the fat of cocoanuts. The use of these is not as extensive as that of the animal fats, and, in the interest of economy, a greater and more extended utilization of the vegetable fats is much to be desired because of their greater cheapness.

By carbohydrates we understand the meals and the various kinds of sugar. These come almost wholly from the vegetable kingdom. The only animal food that contains carbohydrates in considerable quantity is milk. In milk is found, on an average, from four to five per cent of milk sugar, a peculiar variety of sugar essentially different from cane or beet sugar. For the rest, the amount of carbohydrates in animal food is so small that it may be almost neglected; noteworthy amounts occurring only in the liver of animals which have been slaughtered very soon after having been richly fed.

The above foods, useful chiefly in restoring tissues and supplying energy, are almost never introduced as chemically pure substances, but are mixed with the groups that follow.

2. *Organic substances*, which are partly contained as natural admixtures in the usual foods (as extractive matter in meats, the

alkaloids, and volatile oils in vegetables), and are in part added to the foods to improve the taste (condiments), although the last named are not properly foods at all. These are, indeed, resorbed, but hasten through the body without being assimilated by the tissues or used to support combustion. They lack, therefore, the most essential characteristics of a food; namely, that of entering into the substance of the body, or of developing energy by chemical transformation.

3. *Mineral substances.* Of these there are found in the animal body, sulphur, phosphorus, chlorine, sodium, potassium, calcium, magnesium, iron, manganese, iodine, water. With the exception of water, these are contained in foods as salts, or in similar combinations. They are just as necessary components of food as albumen, fat, and carbohydrates.

4. *Food slags.* The usual foodstuffs contain, besides the elements already named, other substances, part organic, part inorganic, which, aside from small quantities, are not resorbed at all, nor admitted into the circulation. We may designate these substances as food slags. They enclose the valuable elements of the food, which are extracted from them by the action of the intestines. The slag itself, unchanged, or changed but little, is thrown out by the intestines. In a meat diet the slag plays a subordinate part; only when large quantities of elastic tissues of poorly masticated sinew, skin, horny substances, gristle, bones, and blood are taken into the system, is the indigestible portion very great. The vegetables are much richer in indigestible leavings. Here belong, before all, the so-called cellulose, the cores and shells of fruits, and the spiral ducts of the leaves and stems of plants, all of them forms which—excepting the finer meals and flours, sugar and fruit juices—make up a more or less prominent fraction of vegetable foods. Although not properly foods, the food slags are nevertheless indispensable, since they excite the movement and the secretion of the digestive canal.

† When the diet is not unduly onesided, the elements mentioned under numbers two, three, and four are always present in the food in sufficient quantity, so that only in rare cases is it neces-

sary to regulate the quantities by the prescription of a physician. (We shall see, however, that in certain diseases the physician must give attention to these also.)

The chief interest centres in the first group. Among the substances in this group, albumen plays a special part.

B. THE SIGNIFICANCE OF ALBUMINOUS SUBSTANCES.

I. The Demand for Albumen.

We meet, as regards albumen, a question of great importance for dietetics. Since the organism is continually destroying and oxidizing albuminous substances, and since the albumen destroyed can only be replaced by new albumen from without, it becomes important to know how much albumen must be brought into the body daily in order to replace what has been lost, and besides, leave enough for the growth of the body, the renewal of muscular tissues, for the regeneration of the blood, etc. This required long and careful investigation. In the beginning, the tendency, under the influence of Von Liebig, was to overestimate the value of albumen for nutrition; the richer the food in albumen (meat, eggs, milk, cheese, etc.), the stronger and more muscular the body. This view of Von Liebig was based on very imperfect experiments; nevertheless, it obtained an enormous influence on the diet of wide circles, on the value attached to different foods, and on medicinal dietetics. Weak and lean persons, both children and adults, sick people and convalescents, must eat as much as possible of meat, eggs, and other foods rich in albumen. The addition of other varieties of food was neglected. The investigations of Carl von Voit were the first to show clearly that neither sick people nor well, neither adults nor children, were benefited by raising the supply of albumen above a certain amount. Whatever nourishment is necessary beyond this amount can just as well, and generally much better, be given in the form of carbohydrates and fats. The numerous investigations of Von Voit, and those of his followers, indicate, as the daily requirement, the amount of 110 to 120 grammes of albumen, for adults; in other words, from about 1.57 to 1.70

grammes of albumen for each kilogram of body weight. Let us see in what quantities of well known foods the amount of one hundred and twenty grammes of albumen is contained.

One hundred and twenty grammes of albumen are contained in:—

425 to 430 grammes	of cheese (Swiss, Edam, Chester, etc).
400 to 420	“ “ roast beef.
650 to 660	“ “ raw, lean beef.
970	“ “ eggs (about 18).
1700	“ “ wheat bread.
3300 ccm.	of milk.
6000 grammes	of potatoes.

After determining the amount of albumen necessary for maintaining the requisite condition of nourishment and strength, the question arises whether animal and vegetable albumens are of equal value in the maintenance of the human body; a question of special interest, not only for the physician, but for the social economist as well, since the vegetable albuminous substances are generally much more cheaply produced than the animal. Von Liebig by chemical investigations had already made the equivalence of these two groups of albuminous substances probable, and Carl von Voit and his pupils furnished the biological proof of it.

II. *Vegetarianism.*

The discovery of this fact was greeted with enthusiasm by the sect of vegetarians; they boasted of it; and yet their calculation was wrong. When they point to the circumstance that animal and vegetable albumens are of the same value for the human organism, they should also admit the experience gained in similar investigations, and by the same scientific methods, that the daily assimilation of at least one hundred to one hundred and ten grammes of albumen for an adult of average weight, is in the long run necessary. (See below.) Let us observe how this works in the vegetarian system.

There are two groups of vegetarians. The first group excludes only those foods derived from slaughtered animals, that is, meat, the fatty tissues of animals, and the dishes prepared from them,

such as meat broths, meat extracts, etc. On the other hand, the products of the living animals, such as eggs, milk, and the numerous foods derived from milk (butter, cheese, etc.) are not forbidden. The figures given above show that with eggs, milk, and cheese a ration can be composed that is very rich in albumen, and, it may also be remarked, a ration very much to the point. In view of such a diet, meat in its character as a vehicle of albumen is wholly unnecessary. Any vital distinction, however, between the products of the living animal and the flesh of the slaughtered animal is entirely arbitrary. Eggs and milk are, as it were, flesh in an embryonic state; they come from flesh, and they become flesh again. When people take it into their heads that they have here a fundamental distinction, and when they believe on religious grounds, or because of other interests, that they must shun the products of slaughtered animals, we can, from the standpoint of physiological metabolism, safely leave them to their prejudices and obstinacy, in the assurance that eggs, milk, and cheese, in connection with vegetable foods, will supply them with a sufficient quantity of albuminous substances.

Quite otherwise is it with the fanatical group of vegetarians who banish from their table even the products of living animals, and wish to live on raw and cooked vegetables alone. This food provides a great deal of carbohydrates, more than is generally consumed by man. But it is less certain that they receive a sufficient quantity of fat, since they have at their disposal only vegetable fats, and these, on account of their oily character, are not so well adapted for the preparation of dishes made up of meal and flour and of vegetables as are butter and lard. By this far too meagre use of fat, which was not intended, but which is a natural consequence of strict vegetarianism, very serious results follow in the matter of general nourishment, and the development of the organism. We shall see that fat is very important in order to impart to the human ration the right nutritive value. (See below.) Still more doubtful is it whether the necessary amount of albumen is secured. In addition to the tables given above, I have thrown together a few figures in order to show what

weights of vegetable foods contain the amount of one hundred and twenty grammes of albumen. We find one hundred and twenty grammes of albumen in :—

6000	grammes of potatoes (=about 13 lbs).
4000	“ “ edible mushrooms (champignons, etc).
2000	“ “ fresh green peas.
1850	“ “ dry rice grains.
1700	“ “ wheat bread.
1200	“ “ fine wheat flour.
520	“ “ dried peas.
460	“ “ dried lentils.

We see that even the best choice and combination of these vegetable foods necessitate enormous quantities in order to compete with animal food in the matter of albumen. But even these quantities are not sufficient to guarantee a satisfactory supply of albumen. For vegetable albuminous substances lose about twenty per cent to twenty-five per cent of matter which passes through the body undigested, while the loss in the case of animal albuminous substances amounts to ten per cent at most. Although it is theoretically correct, that the animal and vegetable albuminous substances are of equal value, the vegetable is, in fact, to be regarded as poor in albumen.

III. Insufficient Supply of Albumen.

After Voit and others had shown that the necessary supply of albumen was much less than had been taught by Von Liebig, an opinion began to gain ground, especially in Germany, about ten years ago, to the effect that even Voit had estimated too highly the amount of albumen necessary in human food. It was shown that both sick people and well could get along with about one gramme of albumen for each kilo of body weight, if only the supply of fats and carbohydrates was correspondingly increased. The investigations in metabolism, against the correctness of which no objection could be raised, were very welcome to the representatives of vegetarianism; for the essential criticism made against vegetarianism had always been that the vegetable ration was too poor in albumen to guarantee a sufficient supply. And

yet all those who, relying on these investigations, held that a small supply of albumen was advisable, overlooked the fact that the experiments had lasted far too short a time, and that the persons experimented on had been placed under conditions very far removed from those of practical life. All had to admit that Voit's calculations were right; they were based on a comprehensive inquiry, carried out with wonderful sagacity, into the composition of the customary ration of men of different ages, of different callings and pursuits, and of different races. Wherever he met with small consumption of albumen, there he found weak individuals and classes of less productive capacity. It remains an established fact, that a liberal supply of albumen is imperative for an all round development of the race. A given individual may perhaps for a considerable time sin against this biological law with impunity. When, however, through generations, the supply of albumen has been inadequate, there the races become weak.

On the other hand, the experiments on the admissibility of a smaller supply of albumen have had important and useful results for the diet of the sick. They have proved that a person may be restricted to a small amount of albumen for several days or weeks without fear of making the body poorer in albumen (poorer in muscle and blood). This is important in several diseases, especially in acute inflammation of the kidneys and the remaining urinary canals; for the products of metabolic decomposition of albuminous substances make their exit through the kidneys and irritate the organ affected.

Practical experience agrees with the theoretical considerations that, in such cases, the prospect of a quick recovery is more favorable when a small proportion of albuminous substance is consumed. It would be a mistake, however, to apply the same principle in a case of chronic disease of the kidneys that may last for months and years; if a small supply were allowed in such a case, the body would be enfeebled. The same is true of many diseases of the nervous system, as in certain forms of neurasthenia. There are many sufferers from this ailment who have become so by a mode of life in which their chief diet consists of substances

rich in albumen (for example, business men who are accustomed to take their meals in restaurants). It would be going too far to assign the undue consumption of meat as the cause of neurasthenia; this is rather the collective effect of a great number of causes. But it proved to be good practice in such cases (in addition to other measures for quieting the nerves) to prescribe for a few weeks a regimen poor in albumen. This treatment was not ventured upon until the investigations in metabolism had made clear that thereby no loss of albumen was to be expected in the body.

IV. Artificial Supply of Albumen.

The investigations and opinions of Von Liebig as to the great significance of the albuminous bodies, had in another direction far-reaching effects on dietetics as well as on the industries. Starting with the idea of presenting the nutritive value of meat in the most concentrated form, he became the founder of the mammoth industry occupied with the production of meat extracts and of artificial foods rich in albumen. His own preparation, known to every housewife as "Liebig's Meat Extract," belongs, it must be confessed, rather to the category of luxuries than to the class of true foods. It contains only the extractive matter and the minerals of the meat, that is, the substances classified under groups two and three.

The important albuminous constituents of meat are almost completely lacking in it. On the other hand, numerous preparations have come into the trade, within the last twenty years, some of which contain natural animal or vegetable albumen in concentrated form, and freed from the useless food slag, while others present the albumen in the form into which the stomach changes it before it can be resorbed by the walls of the digestive tracts. After the chemists had succeeded in producing outside of the body, in the laboratory, these digested albuminous substances which have received the name of "albumose" and "peptone," a new and promising career was opened for dietetic therapeutics.

+ With many sick people, in cases of disturbance of the stomach and intestines, in high fevers, in cases of unconsciousness, there is often great difficulty in inducing the patient to take food

in any quantity worth mention. One has frequently to combat an express aversion to meat, often even to eggs. In other cases, meat or other strong food must be forbidden, because dangers might arise from it, as, for instance, in case of ulcers in the stomach, of an inflammatory state of the cæcum and peritonæum, or of typhoid fever. Since meat and other albuminous foods are lacking, the patient's supply of albumen is extraordinarily reduced. In such cases, it is very important to have at hand finely divided or soluble albuminous substances, with which the supply of albumen can be restored without injury to the patient, and without exciting aversion. Some of these preparations seem to have made good their claim, not only of having produced the albuminous substance in a soluble form, which permits its being mixed with other fluids, such as milk or bouillon, but also of having presented the substance in, as it were, a pre-digested condition (albumose and peptone), so that the burden of digesting was made easier for the weakened and less efficient digestive tract. It is not so very long ago that these preparations were approached by the profession with a certain distrust, as not containing full-valued albuminous substances. The profession was afraid that they did not play the same part as the original albumen during the process of metabolism within the organism. This fear has proved to be unfounded, for it has been shown that the body can manage its housekeeping, as regards albumen, excellently well, even when drawing by far the largest part of its albuminous nourishment from albumose, and only a very small part from genuine, original, so-called "native" albumen. While from this side no other objection can be made, they, nevertheless, have received only a subordinate notice in relation to the sick diet, because, strangely enough, they do not agree either with the sick or the well, and are not as readily resorbed as the genuine albumens. Of course the opposite was expected. It has been shown, however, that they disagree the more with the patient and are the less easily resorbed, and the more readily bring about nausea and diarrhœa, the farther they depart in composition from the original albumen. For this reason, the pep-

tones are not to be thought of; but the preparations of albumose can be employed with advantage, if the quantity be limited to from twenty to twenty-five grammes (dry substance) *per diem*, and these twenty to twenty-five grammes divided into several portions. These experiences are not very encouraging; we see above all that no very great quantitative effect can be expected from albumose and other albuminous artificial foods. These twenty grammes of albumen or albumose in the artificial preparations have a nutritive value of at most one hundred grammes of raw beef; indeed rather less, because the beef contains also other nutritious matter. It is wholly wrong to suppose that there is any special virtue in the form of such prepared foods as Valentine's Meat Juice, Somatose, Nutrose, Tropon, which makes them of more value than the equivalent quantities of meat or other natural foods abounding in albumen. Such an opinion has been disseminated, not indeed by scientific men, but by the trade. These preparations are justified only when the natural food cannot be given in sufficient quantity, and where they are utilized to make up the deficiency that is to be feared.

It will, perhaps, be of interest to give in tabular form how much of each of the better known preparations is required to furnish twenty grammes of albumen, corresponding to one hundred grammes of beef:—

300	grammes of Valentine's Meat Juice.
165	“ “ Denayer's Pepton.
65	“ “ “Puro,” or “Fluid Meat.”
45	“ “ Kemmerich's Pepton.
25	“ “ Somatose.
22	“ “ Nutrose.

If one takes into account not only the albumen, but also the other substances mixed with it, one finds that the nutritive value of one hen's egg is equivalent to:—

254	grammes of Valentine's Meat Juice.
140	“ “ Denayer's Pepton.
22	“ “ Somatose.
20	“ “ Nutrose.

Very instructive, not to say startling, is also the following table.

The same quantity of nutritive substance which in the form of beef costs one shilling, costs in the form of:—

Valentine's Meat Juice 87 times as much.

Denayer's Meat Pepton 55 “ “ “

Somatose 36 “ “ “

The insignificance of the quantities which can be used at the sick-bed, the relatively small nutritive value, and the high price of the artificial albuminous preparations, explain clearly why the high hopes once entertained of them have abated, and show that, according to the universal judgment of the leading authorities, these preparations have at the sick-bed rather the significance of agreeable articles of luxury than of indispensable foods.

C. CARBOHYDRATES AND FAT.

We turn now to the two other chief components of human food, the carbohydrates and fat. The carbohydrates are all of them transformed by the digestive organs into sugar (grape sugar or glucose); they are resorbed and enter the blood as sugar, serving as nutriment and fuel for the tissues.

The surplus which the tissues of the body cannot utilize at once is stored up as reserve material in the liver and in the muscles for later use. But the liver and the muscles can accommodate only a relatively small amount of carbohydrates (altogether about five hundred grammes). If a rich supply of carbohydrates causes this surplus to rise farther, then the organism changes it into fat, and stores this in the greater fat repositories of the body (in the skin, in the mesenteric and other membranes). The transformation of the carbohydrates (meal, flour, and sugar) into body fat is one of the weightiest and best understood facts in the domain of the theory of nutrition.

The fat in food is also resorbed, and circulates at first in the blood. As far as the tissues need it as nutrition or fuel, it is at once seized and burnt, or oxidized. The surplus fat of the food is garnered up in the great repositories of the body, just as is the fat newly formed from the carbohydrates.

We see, then, that in the end the fate within the body of both substances, so different in external characteristics, the carbohydrates

and fat, is the same. In fact, both experiment and experience have shown that these two substances can replace each other in nutrition and in the chemical reactions, so that it is possible for a man provided with a sufficient quantity of albumen (preferably about one hundred and twenty grammes per diem for an adult) to get along with carbohydrates alone, or with fat alone. This was doubted for a long time; in particular, it was believed that the carbohydrates could not be omitted without injury to the body. More recent experiences have decided otherwise; first, races of men were found who had almost no acquaintance with carbohydrates (a part of the Eskimos), and, on daring north pole expeditions, it has been found, notably by Nansen, that by adapting themselves to the Eskimo's mode of life the men could subsist, for months at a time without injury, on a diet composed wholly of animal food, without any carbohydrates at all. In dietetic therapeutics this experience is of great importance, in one disease in particular, — mellitic diabetes; for here, in certain cases, not very frequent it is true, it is desirable to cut off all supplies of carbohydrates for weeks and months.

The faculty of the body of saving up any superabundant nutrition in the small carbohydrate repositories and in the large fat repositories, is of the greatest importance. These repositories are comparable to great reservoirs, which, in a certain degree, make the body independent of fluctuations in the food supply. From these the body draws fuel whenever the stream of sustenance from the digestive tract is interrupted, or is momentarily insufficient. We shall mention later the conditions on which depend the accumulation of fat and the loss of fat. We turn, first, as necessary to an understanding of such changes, to the essential laws of the expenditure of energy, which have become the corner-stone of the modern therapeutics of nutrition.

II. THE VALUE OF NUTRITION IN CALORIES, AND THE SIGNIFICANCE OF THE CALCULATION BY CALORIES.

A. THE DEFINITION OF CALORIES. VALUE IN CALORIES OF THE MAINTENANCE RATION.

The various processes of metabolic assimilation that take place

in the body are, as has often been pointed out,—and an understanding of which, I suppose, can be taken for granted,—in the main, processes of oxidation or combustion; that is, substances of lower degree of oxidation (containing less oxygen) are transformed into substances of a higher degree of oxidation (containing more oxygen); and, in this latter form, they leave the body. By the burning of albumen, fat, and carbohydrates in the body, just as by the burning of coal in a furnace, a definite amount of energy is released, which displays itself in external activity or in heat. The capacity of a substance to furnish force by combustion is called in physical chemistry “potential energy.” Any substance loses by burning potential energy. Of the animal organism, then, we may say, substances of high potential energy enter the body; substances of low potential energy pass out. What the substance loses in potential energy on passing through the organism, the latter gains in the form of potential energy (heat or work). As unit of potential energy is chosen the physical unit called “calorie.” This is defined as the quantity of heat necessary to raise the temperature of one kilo of water one degree centigrade.

The amount of potential energy, expressed in calories, which accrues to the organism when any given substance is thoroughly “burned,” is called the physiological combustion value of the substance, and is exactly known:—

1 gramme of albumen	4.1 calories.
1 gramme of carbohydrates	4.1 “
1 gramme of fat	9.3 “
1 gramme of alcohol	7.0 “

The introduction of this physical unit in order to find the true value of foods has made possible the discovery of an important physiological law. Rubner has shown clearly that, for the production of force and heat in the animal body, the different foods can be interchanged according to their relative combustion values: one hundred grammes of albumen equal one hundred grammes of carbohydrates or forty-four and one-tenth

grammes of fat, because these three amounts develop, by combustion in the organism, the same quantity of energy, namely, four hundred and ten calories.

This isodynamic law, which is, essentially, only a special application to the animal economy of the doctrine of the conservation of energy, permits the use of a convenient expression, and one that is constantly growing in popularity, for the transformations of substances and forces in the organism. For instance, instead of saying, in a given case, that a man takes food containing one hundred grammes of albumen, one hundred grammes of fat and four hundred grammes of carbohydrates, we say that he takes 2980 calories of nourishment, containing one hundred grammes of albumen. It is always desirable to make special mention of the amount of albuminous substances, because these occupy a position of special importance among foodstuffs. The number 2980 is obtained from the following calculation :—

100 grammes albumen multiplied	by 4.1=	410 calories.
100 grammes fat	“ “ 9.3=	930 “
400 grammes carbohydrates	“ “ 4.1=	1640 “
Total		2980 “

It is easy to see that this method simplifies our understanding of the capital at the command of the human organism.

After the physiological fuel value of the different food substances and their elements was determined, the question arose : What is the real magnitude of the heat exchanges in man ? This depends on the size of the body and on the amount of work it performs,—precisely as the coal consumption of a steam engine depends on its size and the amount of work it is to do. The extensive and laborious investigations that have been made in this direction substantially agree in the results that follow. To supply this daily loss for each kilo of his weight, the adult needs daily as nourishment, when engaged :—

In complete rest	30 to 35 calories.
In light occupations	35 to 40 “
In moderate muscular labor	40 to 45 “
In hard muscular labor	45 to 60 “

These values are to be increased about one third for children, and diminished about one fourth for the aged. The values apply with no essential difference to males and females alike.

These figures tell the following story: When a man of say seventy kilos weight (one hundred and fifty-four pounds), engaged in a light occupation involving little muscular effort, consumes each day nourishment that conveys to him thirty-five to forty calories per kilo of his weight, besides a corresponding quantity of albumen, (see above,) he makes up by this for all expenditures (nourishment of somatic cells, loss of heat, muscular effort, etc.); the weight of his body remains unchanged; it has neither gained nor lost, and we say the man is in calorie-equilibrium, or in metabolic equilibrium. The amount of nutrition necessary to maintain this equilibrium is called the maintenance ration. Based on the above data, we can, knowing the age of a man, his weight, and the amount of his muscular labor, calculate with considerable exactness his maintenance ration, that is, how many calories his food must contain.

Most adult persons of sound health regulate their eating without the aid of a physician, in such a way that their daily consumption corresponds to the maintenance ration: the instincts of natural hunger instruct them to choose aright the amount and kind of food; when expending less effort, to eat less, and by increased expenditure of energy (as in greater muscular exertion) to eat more; with the result that their weight remains constant, with the exception of small fluctuations, for months or years or even decades.

Nevertheless, there are frequently disturbances of the calorie-equilibrium in the well and in the sick also. This may happen: (1.) When a person eats more than he needs, more than he burns up, decomposes. (2.) When he eats less than he needs. The first case is called excessive nourishment; the second, insufficient nourishment. These questions, so important in dietetic therapeutics, demand our more careful attention.

[TO BE CONTINUED.]

A HISTORY OF JAPANESE ART

JOHN LA FARGE, *New York.*

This sumptuous volume, illustrated by many plates, many of them in colors, aims at being the first serious history of Japanese art. The field has never been covered, and is one of the largest, as far as centuries express, that a historian has ever undertaken. Its very size and the necessity of a given date for completion have obliged the compilers to a certain dryness throughout, and a tendency, perhaps I ought to say a necessity, of including small matters with the greater ones in such a way as to make them appear of equal importance. That is the false side of the dictionary or encyclopædia. But the art of Japan, its development, and its connection are so interesting, so rich in *sidé* issues, so distinctly tied up with social developments, that it is almost impossible to write a great deal about it, (and this big folio has some three hundred pages of close print,) without unfolding a number of detailed accidents, which in themselves, without any special reference to Japan, are full of artistic instruction.

The book was intended to be published for the beginning of the Exposition, but was only completed in time for its end. The correctness of the text was intrusted to the Imperial Museums. Each work cited was meant to be duly authenticated; and to the translation, which is by Mr. Tronquois, was committed the heavy work of the result of these documents; a mass of technical detail, for which no exact international dictionary had been established. The editors claim to have respected throughout

(1) *Histoire de l'Art du Japon.* Published by the Imperial Commission of Japan to the Universal Exposition at Paris, 1900.

the ancient texts used by the different collaborators. Many of these texts, they also claim to be the first to present.

The work covers the entire field of art, from the early pre-historic monuments and fragments to the work of this century, and from the great fresco of Horiuji to the pottery which we know so well.

Baron Kuki, the former Minister of Japan to Washington, prefaces the work and assumes its responsibility. He says in his preface that Mr. Okakura, whom we all remember in this country, was unable to continue the work placed in his hands of the compiling and classing of materials ; but the plan of the work and its general shape were examined and approved by him. In his place Messrs. Mataishi, Fukushi, and Yoshio Ki have carried out the work. With them were associated Dr. Mayori Kurokawa, Messrs. Yonekichi Miyake, Tsuta Itô, Yusaku Imaizumi, Sugimura Kosugi, and Kein Saitô, and the staff of the Imperial Museum. Messrs. Shigenobu Hirayama and Kanai Kubota had "control of the publishing."

Baron Kuki's preface indicates the meaning of the entire work, and is an appeal to the interest that all men of culture should feel for Japan. He describes the charm of Japan, which its natives feel, and which is intimately connected with their art ; and he shows how this curious land has managed to keep up its arts, while China and India, ancient also, and mothers of the ideas of Japan, have died out in melancholy non-production. For certain sides of the thought of India and of China, it is, therefore, necessary to go to Japan, which has preserved the tendencies no longer in life in the mother lands.

He then explained, that the Bureau of Research for the National Artistic Treasures of Japan has helped to a careful examination of the wealth of artistic deposits in the temples ; and upon the results of this examination he bases the accuracy of the present work. He states, which I have already implied, that only a beginning can here be found. The enormous number of facts, necessitates much further investigation, which he promises to see continued in the coming years. It is the beginning

of an encyclopædia of Oriental art, which alone Japan can give.

The book is divided by the different "epochs," with a statement of the social conditions of each time as affecting art. There are attempts at describing the character and evolution of the arts of each separate epoch of painting, sculpture, architecture, and what we call industrial art, with accounts of certain special monuments, or examples. A very careful, though not novel, reiteration of the influence of the country's landscape on the feelings and admiration of the people is placed at the beginning of the general analysis. The phenomena of the seasons are described as part of the motives of art; the geological make up of the country; its volcanic summits; its thick vegetation; its strange forms of rock; with fog and wet and damp that accompany its warmer climate, as well as the picturesqueness of the storms and snows of winter.

In this beautiful land, the family of man called Yamato has lived uninterruptedly under one dynasty for two thousand years, and has given its personal character to a civilization. Love of the native land, loyal devotion to the Empire, love of cleanliness, certain virtues of morality, are claimed for them along with courtesy and personal valor, and a military courage which has never passed into brutality. A certain sympathetic method of observation is partly natural and partly cultivated by the influence of Buddhism and Taoism. Hence, an easy, and sometimes passionate, reception of ideas from outside, and a constant anxiety to know more; but all remodeled by the special Japanese turn of mind; with that, an extraordinary sensitiveness to the beauties of nature, and a most peculiar facility, or dexterity, in manual labor. All these points are intimately connected with their art. Hence, their love for delicate impressions, for an avoidance of violent emotion, for a general elegance and calm in their expression of art. But the teachings of Buddhism and of Confuciusism have also made them understand the higher motives.

This sympathetic disposition, Chinese teachings, and a special sleight of hand have kept the painting of Japan to the character of a sketch.

To break the course of this analysis, I quote, suddenly, from a text given far in the story of the fifteenth century. When Toshiyun was a driver of horses, and met the painter Shyubun, he made a sketch of a horse, whose general form was excellent; but something was wrong with the drawing of its feet. To Shyubun's criticism the driver answered: "What is essential in painting, is to seize the spirit of the thing. Why discuss whether the form be perfect or be not?" For which answer, Shyubun took him as a pupil. Hence, the Japanese drawing is an idealized interpretation. It is often more faithful to tradition than to a realistic rendering; it always pursues the realizing of an idea; it prefers the beauty of type to individual beauty; thus agreeing with Buddhistic ideas. Japanese painting puts aside light and shade, or what we call *chiaroscuro*. To the Japanese artists, the realistic drawing is a thing to start from. They have also neglected a rigorous observation of perspective, as understood by the European. Decoration has been the sentiment of the composition, as it has been with the early Western artists. Japanese color is light, relatively, and not deep, unless when influenced by motives not essentially Japanese. Within its use and the use of decorative motives, they have kept to a less fantastic development than India or Japan. For sculpture, the resemblance to the West is nearer, and the early sculpture is essentially Buddhistic. It is only quite late that something especially Japanese appears in that art. So says our text, but perhaps to the outsider this foreign influence is more mixed with a national feeling than such a general statement would allow. Certainly, the wonderful figure of a peasant girl to be seen among the ancient work at Horiuji holds an ideal that must have passed through the personal life of its maker, so perfect is the purity of simple life and belief, and sweetness of individual character expressed in this most perfect picture of the peasant mind.

Perhaps our authors, in their general statement, have not sufficiently insisted on the constant impression of realism that Japanese sculpture shows, even in the Buddhistic religious works, unless we except a very few great representations of the higher

Spiritual Powers. The sum total of the painting and sculpture connected with Buddhism is one of the great manifestations of art. And in the absence of a better knowledge of what China and India may once have had, we can say that the Japanese artists, or their first foreign teachers, have managed by most unfathomable suggestions of realism, (slightly modifying certain very abstract representations,) to give us something further in the intellectual than Western art has ever tried for. The definition is inadequate, because the very ideas which these works of art typify are so far removed from the teachings of a human sentiment, that we can hardly analyze the means by which, to our unaccustomed eye, these paintings and statues impress us as exponents of deep religious-philosophical thought. And yet, they give that impression fully ; so that it is not necessary for us to know the shades of Buddhistic philosophy that have influenced various expressions ; and even with assistance of a more thorough explanation, they are merely made more easy of classification, or relieved from strangeness in detail ; which detail is of course, as in all symbolical art, a statement of some variety of teaching. In the book before us the variations of Buddhistic teaching are noted as going along with the developments of art, and help the analysis of change. Personally, I am not capable of criticising the accuracy of these notations ; and there might be some differences of opinion concerning them, which is but natural. In the case of the architecture and its development, the rise and success of the different sects is, of course, a very important explanation ; which our authors carefully lay out.

They point out the physical causes of Japanese architecture ; its use of wood and the development, thereby, of certain extraordinary merits of carpentry ; how also the exterior has to remain simple, while the interior becomes more and more complicated and rich. Besides the physical reasons for the simplicity and relative smallness of Japanese architecture, it is pointed out that the Emperors changed frequently the site of their capitols ; the rules of mourning obliged occasionally reconstruction ; sumptuary laws established a difference between the representations of rank

and class. Then, later, the Bushi inculcated simplicity; the military feudal philosophy was all in that direction; and with the later rulers of Japan set forms and set ideas kept the past without change. Naturally, also, the architecture of Japan is largely that of assimilation from the countries whence came Buddhism, the artistic influence that first modeled Japan. There is, however, an earlier national architecture anterior to the importation of Buddhism. It is not that any of these facts are new, but that we are distributing the parts of an analysis of the arts. Our authors indicate how, in the earliest times, a favorable climate and natural indolence required for intellectual development some outside influence. And they take the reign of Kimmei Tenno (540 of the Christian era) as the moment of transmission through Corea of the Chinese arts of the six dynasties: Buddhism and Confuciusism help the departure. With the epoch of Ten-shi Tenno, 650 A. D., direct relations are established with China; the influence of India, and hence of all pervading Greece, comes in. The period of Shyomu Tenno and the influence of the T'ang elevates the ambition and the style of art; foreign works are imported; and at the same time a national taste is developed. With that, the foundation of the sects of Tendai and Shingon, and knowledge of Chinese literature increase still more the intellectual enthusiasm. The Fujiwara, about 880, increased the Japanese spirit, ceased sending embassies to China, closed the country to strangers, and on the basis of the art of the T'ang, Japanese sentiment flowers in mysticism. The Tahira modify the arts in the direction of the early Shung (1130); a military action begins, which with the period of Kamakura develops an art of strength and magnificence, wherein color, based on the Chinese Shung, becomes more and more a character, even in the statues (1186). Then the Ashikaga bring in with the Zen sect greater simplicity; a tendency to the appearance, at least, of an ascetic refinement; and at the same time the collectors and connoisseurs begin their reign. Then come the great civil wars; until Hideyoshi, once a mere stable boy, assumes power, conquers Corea, and begins to

establish the lasting peace of Japan. The decorative feeling increases, and many new forms come up: the more worldly artists begin to ornament the buildings; the Tea Ceremony is codified; the Tea Rooms are constructed; and with the Tokugawa, from 1600 to 1870, civilization is of an exclusively national character. Foreign nations are shut out; extreme richness and delicacy of sculpture and color ornament the temples beyond any known before to the world; all works of art are collected, and all artisans encouraged; metal, lacquer, etc., become specially wonderful subjects for the artist; and the Japan that we knew lives for two centuries, until our coming interrupts the civilization that had encouraged these many forms of art. China and Holland, however, exerted special influences, and the study of Japanese antiquities was also not without its influence on the arts. Since then the arts have been troubled; but the Japanese hope, under new auspices, and with the basis of an extraordinary artistic culture, to flower again in a manner that shall continue, at least, the glories of the past.

This analysis gives the summing up of the book; to make it adequate, an entire article or several would be necessary to criticise the mass of detail collected; and even then it is to be stated again, in favor of the authors of this volume, that they look upon it as a mere reasoned catalogue of what might be done and of what they hope in successive studies to accomplish.

There are many views of Japanese art that could be suggested for treatment by the native mind,—too close, it is true, to its own results not to take many things for granted, but alone capable of the full exposition.

THE WOMEN OF THE RENAISSANCE¹

BENJAMIN W. WELLS, *New York.*

No more fascinating study of what we may call the psychology of sociology has appeared in this decade, so far as I recall, than M. de Maulde's genial, sympathetic, yet inexorably judicial, account of the rise of Platonism in Italy, in the sixteenth century, its gradual conquest of French society, its triumph, and its ultimate failure as a system, though the precious legacy that it left behind in the amelioration of social life, was never wholly lost, and is working on still as a leaven.

But we should derive an entirely false impression from M. de Maulde's book, if we were to think of it only as a philosophic study. It will, indeed, well repay the reader who grasps it in its entirety, holds it in solution in his mind, and lets its informing ideas crystallize there, for they will serve to explain very much in the literary, social, and even the political, history both of Italy and of France. But the book is not merely for the fit company, though few, of the studious or the philosophically-minded; but, to borrow one of the author's dainty phrases, it may be read also in "little sugary sips." There is a deftness of style that is itself a charm, a fund of anecdote and apt illustration that serves the double purpose of impressing the student with the author's searching thoroughness, and the dilettant reader with his sense for the amusing and the picturesque. Many will read this book without suspecting its depth, but none will read it without rejoicing in its sparkling lightness.

What we have said is, of course, applicable primarily to the

(1) *The Women of the Renaissance ; A Study in Feminism.* By R. de Maulde la Clavière. Translated by George Herbert Ely. New York : G. P. Putnam's Sons, 1900. 8vo., pp. xvii, 510. Price, \$3.50.

original, yet a word of tribute should be paid to the translator, who has certainly succeeded, beyond our hope, in distilling the spirit from one language to another. Loss there has been, and perhaps an occasional infelicity, which it were tedious and churlish to discuss here, when the general success has been so distinguished. We could never imagine that we were reading an English book,—we English do not write or think in this way; but the exotic element gives to the pages a prickling piquancy, suggestive of the typical wine of France, and therein lies a real triumph of the translator's art in dealing with a work so uniquely personal in its manner as this crown of a lifetime's study. For this is the tenth volume that M. de Maulde has published on various aspects of this epoch-making period in the evolution of European society.

Our author regards the Renaissance in its social aspect, as essentially a question of the position and ideas of women. Up to that time, he says, women had been regarded as inferior to men. Opinion was built up on the practical and utilitarian basis still cherished in Anglo-Saxon countries. Woman's duty, at the best, was to remain at home, a domestic ornament, precious but fragile. Yet, already in France, and still more in Italy, women were asserting themselves as a power, from the market-place to the throne. Isabel of Bavaria, Jeanne Darc, Anne of Beaujeu, and Louise of Savoy, are examples. Italians and Frenchmen were less apt than the English to forget what François de Moulins told Francis I., "that women came from Adam's side, not from his feet," and were prepared to welcome the idealist aspiration of the Platonist women to be the soul of society, to reign in the realm of the ideal, to minister to enthusiasm, beauty, and the intellectual life, to be, in short, "the Queens of happiness." M. de Maulde's whole purpose is to show us how the women of the Renaissance "accomplished on behalf of the rights of the heart a sort of *coup d'état*." To be sure, in the end no one was happy after all. But it is interesting to know why, especially when we have so genial an instructor as this, and one who knows so well the highways and the byways of his theme.

Surely the France of the sixteenth century cried out for the assertion of idealism, for an æsthetic and spiritualist revolution. Chivalry and gallantry were all very well in theory, but in practice the French, M. de Maulde tells us, "treated women like animals, with the whip." The hundred years' war, the civil war, the pressure of taxation, social distress, had borne their normal aftermath of brutality. With peace and prosperity, Platonism blossomed as a natural reaction. French women found their best schoolmistresses in the Italians, who had already sought in idealism not only an anodyne for the ills of life, but the only joy of life. Women's medicines, we are told, are love and hate; in their idealism they turned their hate against the power of money and the power of war; they sought to raise love to the realm of sentiment, and to make it a worship of the beautiful, to make life a work of art. Already in Italy and Spain, women were ceasing to be understudies of their husbands, leading an independent, intellectual, and moral life, in their aspiration to bestow a moral charity for moral and spiritual penury, to be the trustees for their generation of beauty and of happiness.

The conditions from which they attempted to break away, the justification and the necessity of this idealistic revolt, are shown in the first of the three books into which the study is divided. Marriage and the married women, the children, the education of girls, the husband, and the various ways of slipping his yoke, are the subjects; and we see how little scope there was for idealism in the prevalent conception of family life, for the wife or even for the mother, whose influence on her boys after seven years was regarded as manifestly fatal to manliness. Such conceptions of married life were a natural nursery of Platonism. Perhaps at first the wife might suffer, perhaps as M. de Maulde exquisitely says, "her heart would close a little more toward earth and open out toward Heaven," but the experience would be useful, an idealist might even rejoice in it, as a reminder of how idealism was alone giving worth to her life. Home brought no love, but the women felt they were made for love, that this was their mission. The cruelties and ironies of material things drove them

back upon the spiritual with a desperation in which there was a touch of enthusiasm.

The fullest expression of this new spirit in France is in Margaret of Navarre, sister of Francis I., and queen of intellectual France. Typical of the feminist philosophy of the period is her part in the "Heptaméron," of which M. de Maulde has made the fullest and most judicious use. After analyzing thus the philosophy and science of Platonism and the new feminine mission of beauty, as it manifests itself in the little things of life, he shows how it perished at last before the fascinations of wealth and display, which were themselves to be rudely checked by the progress of Calvinism and the religious wars. Intellectualism remained. The women of the early Renaissance had been no blue-stockings. Books and art were to them ministers to happiness. They were not humanists as were the Germans, or even as many of the Italian clergy were. Their attitude is epigrammatically stated when it is said here that "they behaved as instructed women, and above all as women of feeling, as women who wished to please, nobly faithful to their single-eyed purpose of elevated love"; truer in this to their ideals than the later "Précieuses," who were their heirs and in a sense their successors.

What, then, was the influence of these women upon their time? Politically it sought to be little, and was, in fact, less, at least directly, than chance made it appear. Morally it refined rather than purified. Of this the "Heptaméron" is sufficient proof. There was an ennoblement of vice, but with it there was a softening of virtue. Intellectually and æsthetically, the feminine Platonist influence was more beneficent and more enduring. But most profound of all was the religious influence of the movement. "Starting from a crisis in belief, it led to a transformation of Christianity." Its ultimate result was the exaltation not of women, but of the soul. This remained after the dream of Platonism had vanished. In instituting the religion of beauty, these women ministered to the beauty of religion. They taught that happiness and peace were to be sought in striving for beauty, believing, acting, and living through love; but that, as M. de

Maulde observes, is the substratum alike of Christianity and of Platonism.

Immediately and superficially the movement had ended in a bitter irony. It left society less vigorous than it found it. Its philosophy resulted, as philosophy, in scepticism. Its social panacea introduced France to the wars of religion. Its art for art's sake seemed for the moment the death alike of art and of literature. The great leaders did not achieve happiness; their successors did not deserve it. Yet the defeat was not absolute. The seed that they sowed is vital still for good and ill, but mainly for good. These high souled idealists were eminently feminine in their tender sincerity. To the feminists of to-day, who are seeking their path and even their star, M. de Maulde commends them, not perhaps for imitation, but for sympathy. The moral of it all, he tells us, is that virtue need be neither tiresome nor stupid, that good women should love the beautiful; that "true sweetness, true goodness, true love, come not of naïveté or feebleness, but of intelligence and personal force."

THE NATIVE VIGOR OF ROMAN ART¹

FRANK MILES DAY, *Philadelphia.*

The reader who is not in the habit of carefully noting a book's sub-title (the essence, usually) will get a mistaken notion of the scope of Wickhoff's book. Roman art is a broad term; and with one of its chief branches, in fact with that branch in which it displayed its most marked individuality, with its Architecture, the book has nothing to do. If we wish to know, on setting out, what ground it covers, we find in the author's preface a definition far more exact than that of the title. He tells us that he has attempted an historical account of style in Roman painting and sculpture from the time of Augustus to that of Constantine. He is a firm believer in the native vigor of Roman art. He would have us see it as maintaining its own against the most potent influences from without. Indeed, his book is a sturdy defence of the art of Rome "against the imputation," as his translator puts it, "of being nothing but the last chapter of the long history of Greek art, in fact a sort of decadent anti-climax." The analysis to which Wickhoff subjects style in art is singularly penetrative. Unlike most archæologists, he approaches the subject as a painter or a sculptor might approach it. He is interested in the æsthetic causes and conditions of change. His insight is clear, not merely because he is a subtle thinker, but because he thinks in sympathy with the men who made the things

(1) Roman Art : Some of its Principles and their Application to Early Christian Painting. By Franz Wickhoff. Translated and edited by Mrs. S. Arthur Strong. 8vo., pp. xv, 198; 14 plates, 81 ill. in text. London : Wm. Heinemann; New York : The Macmillan Company, 1900. Price, \$8.00.

in which he is interested. Added to this, he discusses his problem in an entirely modern spirit. Thus the book's scope and its author's point of view are briefly stated.

A word as to its origin. The Imperial Library in Vienna possesses certain Early Christian manuscripts, among which is one that contains the oldest connected illustrations of the Bible, probably as old as the fifth century. This manuscript gives substantially the contents of the book of Genesis. It has on each page a carefully executed picture, the subject of which is directly related to the text above it. Since this manuscript had been several times unsatisfactorily engraved, such a reproduction of it as would satisfy the requirements of modern scholarship was manifestly desirable, and in 1895 it was forthcoming under the title "*Die Wiener Genesis herausgegeben von Wilhelm Ritter von Härtel und Franz Wickhoff.*" Härtel described the manuscript and the Greek text; Wickhoff, the pictures accompanying them, adding an essay on the transformation of style in ancient and especially in Roman art, which brought the study of the subject down to the early Christian period. It is this essay, detached from the background of the "*Wiener Genesis*," and furnished with very excellent illustrations, which the translator offers us.

As the current of thought in the book does not flow with steadiness, but loses itself in eddies and backwaters, it seems that the reviewer can scarcely do a better service than to make its main channel clear. This we will endeavor to do, as far as the nature of the case permits, in the translator's own words. To begin, then, these Biblical pictures tell their story in a way unknown to the Greeks, in a way unfamiliar to us now. Our way is, seizing a moment of interest, to depict its action, making the picture tell the story of that moment and of that alone. But the way of the fifth century was different. As the text flows along, the illustrations follow it so closely that the actors appear again and again in the same picture. Thus, to take an example, we find within a single border six figures standing among fruit trees: to the left, Eve gives the apple to Adam; in the centre,

overcome with shame, the guilty pair hurry to concealment ; to the right, they are hidden within the bushes. This, Wickhoff characterizes as the *continuous* method of narration. He points out that it is not confined to Early Christian art, but that it is equally characteristic of the last efforts of pagan art, as witness the reliefs of many sarcophagi. The continuous method lasted for fifteen centuries, one of its most splendid examples being Michael Angelo's "Christ on the Mount of Olives," wherein, to the left, Jesus is seen in prayer, while near-by he turns to rebuke the sleeping disciples. It is precisely in the emergence of the continuous method, as an independent style, in the second century of the Roman Empire, that our author finds one of the strongest evidences of the robustness and vitality of Roman art and of its separateness from the art of Greece. For him the continuous style cannot be comprehended within the general conception of Hellenism. Having thus introduced his subject, he asks three questions: How and when was a *Roman* art developed? how is the continuous method of narration its result? under what circumstances was this method adopted for Christian representations? To the consideration of these questions, the volume is dedicated.

At once attacking Roman sculpture, Wickhoff devotes the larger part of his book to it. To that Augustan art which gave us portrait sculpture of such great distinction, and so noble a picture of the Romans at their highest and best as the reliefs of the *Ara Pacis*, Wickhoff is prepared to grant the title Hellenistic. But it is Hellenistic art in Rome, which, though coming from Greek artists, is already influenced by Roman thought and Roman patronage. For him the Augustan is the last phase of Hellenistic art, the basis from which Roman art was shortly to develop.

It was only when Roman amateurs gave up the exclusive patronage of Greek artists, and began to give their commissions to people of their own race, that a change of style could take place. Then a contrast makes itself felt between a Grecizing art in Rome, and a common Latin art on an Etruscan basis elsewhere. This was an art that sought not types but truth, truth of the individual case, an art that sought to reproduce the effect of phe-

nomena, in brief, an *illusionist* art. When once these native sculptors had become numerous in the city, their traditional methods, harmonizing as they did with the Roman character, crowded out the Hellenistic style. Yet it was this intermediate style, this imitative-naturalistic style, that enabled art to make the step from Greek to Roman. The first manifestations of this new illusionist style are to be found among the simple memorial slabs on which husband and wife, children or fellow workmen, are cut in high relief. The most important piece of sculpture of this kind left to us, the monument of the Haterii, is not earlier than the end of the first century. It is in all respects Roman, bearing no mark of Hellenistic tradition. The carving of its pilasters stands as a typical example of the illusionist style, conveying with the most exquisite touch the impression of a rose-bush twining gracefully about a slender vase, its opening buds and blossoms stirred by the wind. Emphasis is laid on whatever heightens the effect of movement and bloom, while whatever in the natural plant would interfere with this effect is suppressed. The author's analysis of the artist's treatment of this charming theme shows his way of looking at things with an artist's, not a pedant's eye.

A long and interesting digression upon the Roman manner of applying color to sculpture, leads us at last to the Arch of Titus, where a stroke of genius solved the problem of producing a complete illusionist effect in reliefs, and where color supplemented the relief, not in the old Greek way, but in a way that had kept pace with the changes in the treatment of the solids. Everything is concentrated on the one aim of producing an impression of continuous motion, and we have an attempt to present an extract from real life with all possible truth to nature. The author's minute analysis of these reliefs, and their coloring, forms a most important link in his chain of argument, and leads us to the still more successful work of the next generation, in the Arch of Trajan at Beneventum. In these noble reliefs (now so easily within the range of study in this country, on account of the complete casts recently set up at the Museum of the University of Pennsylvania, and in other museums) the artist wished to present

such crowds as gather at public festivals, squeezing and pushing, and with difficulty restrained from breaking into the space reserved for the official personages. Illusion, then, is here called upon to present the notion of *crowding* in the background, while the Emperor and those about him are brought to the very front. Although the crowd behind becomes a connected whole, the Emperor, having to be frequently shown in various actions, still appears but once within the same border, and it is not until we reach the Column of Trajan that the continuous narrative style takes definite shape. Why endlessly repeat in isolated pictures the crowd among whom the Emperor was to appear? why should not the men and horses and the landscape be continued uninterruptedly, the Emperor appearing here and there, and forming the nucleus of action wherever he comes into view? Thus at last the cycle of the author's thought is almost completed, and we return to the manner of delineation of the "Wiener Genesis." At this point, having shown the rise of a new Western and Roman art, he might have brought his reflections to a close, but he adds a long chapter on Roman, and especially on Pompeian, painting, in order to give us the connection with Early Christian painting.

Wickhoff's insistence upon the essentially Roman character of the art of Italy after the Augustan age, has found, as was natural, many opponents; but the attention which it has concentrated upon a somewhat neglected period, rich in works of inherent nobility and of deep historic interest, has been a gain for all concerned.

THE AMERICAN WOMAN

HUGO MÜNSTERBERG, *Harvard University.*



NOT long ago, I had an enjoyable call from a young German whose purpose in crossing the ocean was to catch a glimpse of American life. Very naturally we talked, as fellow countrymen do, of the impressions which the New World makes upon the foreigner who has just reached its shores. I asked him whether he kept a diary. He declared that he did not have time for that; but he showed me a little pocket registry in which he was accustomed, as a man of business, to enter his debits, credits, and doubtful accounts. Further on in it, he had instituted a similar reckoning with America. He explained that this was the briefest way of grouping his impressions. I have forgotten the most of these, since the record was one of considerable length; but of the credits I remember distinctly such items as the parlor cars, oysters, waterfalls, shoes, autumn leaves, libraries, after-dinner speeches, the city of Boston, the ice-cream, the hospitality, the Atlantic Monthly, etc. Then came the doubtful accounts: the newspapers, mince pies, millionaires, sleeping cars, furnaces, negroes, receptions, poets, the city of New York, etc., etc. And finally came the debits: monuments, politicians, boarding houses, the spring weather, servants, street cleaning, committee meetings, pavements, sauces, and at least three pages more. But what impressed me most of all—and by reason of

which the little book comes to my mind at this moment—was a simple “family division” that I found there: under the debits the children, under the doubtful accounts the men, and under the credits the women.

It gave in so simple a formula what all of us had felt during our first months in the New World. We were all amazed at the pert and disrespectful children, and we were all fascinated by the American women. Now and then arose in our souls, perhaps, a slight suspicion as to whether these two things can really go together: it seems so much more natural to expect that a perfect woman will provide also for a perfect education of her children; but whenever we met this woman herself, whenever we saw her and heard her, all scepticism faded away; she was the perfection of Eve's sex. And one group always attracts our attention the most keenly,—the college bred woman. There are beautiful and brilliant and clever and energetic women the world over, but the college girl is a new type to us, and, next to the twenty-four story buildings, nothing excites our curiosity more than the women who have studied. Some, to be sure, mingle with their curiosity certain objections on principle. They remember that the woman has some grains less of brain substance than the man, and that every woman who has learned Greek is considered a grotesque bluestocking. But even he who is most violently prejudiced is first reconciled, and then becomes enthusiastic. He wanders in vain through the colleges to find the repulsive creature he expected, and the funny picture of the German comic papers changes slowly into an enchanting type by Gibson. And when he has made good use of his letters of introduction, and has met these new creations at closer range, has chatted with them before cosy open fires, has danced and bicycled and golfed with them, has seen their clubs and meetings and charities,—he finds himself discouragingly word-poor when he endeavors to describe, with his imperfect English, the impression that has been made upon him; he feels that his vocabulary is not sufficiently provided with complimentary epithets. The American woman is clever and ingenious and witty; she is bril-

liant and lively and strong; she is charming and beautiful and noble; she is generous and amiable and resolute; she is energetic and practical, and yet idealistic and enthusiastic—indeed, what is she not?

And when we are in our own country once more, we of course play the reformer, and join heartily the ranks of those who fight for the rights of women and for their higher education. I have myself stood in that line. Some years ago, at the moment of my first visit to America, the problem of women and the universities was much discussed in Germany, and about one hundred university professors were asked for their opinions, which were published in a volume entitled "The Academic Woman." And when I sat down to furnish my own contribution to this subject, there appeared before my grateful imagination the lovely pictures of the college yards which I had seen from New England to California; I saw once more the sedate library halls where the fair girls in light colored gowns radiated joy and happiness; I saw before me the Ivy procession of the Smith College students; I saw again the most charming theatrical performance I have ever enjoyed, the *Midsummer Night's Dream*, given by Wellesley students on a spring day in the woods by the lake; I saw once more the eager students in cap and gown in front of Pembroke Hall, at Bryn Mawr, and I saw once more the Radcliffe Philosophy Club where we prolonged our discussions through so many delightful evenings. A German Wellesley and Bryn Mawr, I exclaimed, a German Smith and Vassar, that is the pressing need of our fatherland! My enthusiastic article was reprinted and quoted in the discussions, up and down the land; thus I found myself suddenly marching in line with the friends of woman's emancipation; and I was proud that I—the first one in my German university to do so—had admitted women as regular students into my laboratory, years before I came to America.

All that was long ago. I do not now see American life with the eyes of a newcomer. That does not mean that I to-day admire American women less than before, nor does it mean that

I falter in my hopes that Germany will absorb American ideas in the realm of higher education for girls. All these feelings remain the same, and yet, since the surface view of the tourist has been replaced by insight into the deeper mechanism, my creed has changed. I believe to-day that it is no less important for America to be influenced by the German ideals of a woman's life than for Germany to learn from America. Of course when I speak of German ideals, I do not mean that witless parody which decorates the speeches of woman suffragists. I mean the real German woman, who is to Americans who have a chance to come into full contact with German life mostly something of a surprise. They expected a slave or a doll, a narrow-minded creature without intelligence and interests, and now their experience is like that of a lady from Boston,—if I may be allowed to make use of her home letter,—who finds that every woman with whom she becomes acquainted in Germany has her serious special interests; that they are all quite other than she had imagined them. And what is much to the point, the Germany of to-day is not that of twenty years ago. The immense industrial development of the whole country, which has brought wealth and strength and fullness of life into the whole organism, and which has raised the standard of social existence, has left no sphere of German life untouched.

The efforts of this new Germany in the interests of the woman have taken four different forms, four tendencies, which naturally hang together, but externally are sometimes even antagonistic. The first movement, which applies to the largest number of individuals, is that which tend to soften the hardships of the female wage-earner, especially among the laborers. The second seeks to raise the character of the general education of girls in the higher classes. The third endeavors to open new sources of income to the better educated women of narrow circumstances, and the fourth has as its aim the clearing of the way for women of special talent, that they may live out their genius for the good of humanity. I have said that these impulses move partly in opposite directions; to widen the horizon of the women of the higher

classes and to prepare them for professional work means to draw them away from the hearth, while all the efforts in behalf of the women in the mills and shops tend to bring them again to the hearth of the home. The one group gave too much time to the mere household, in its narrowest sense; the other group had too little time for this. The progress in all four directions is almost a rapid one; the legislation in the interest, and for the protection, of working women is a model for the world; and—to point to the top of the pyramid—the conservative universities have opened wide their doors. Last winter 431 women were admitted to the University of Berlin alone.

These four tendencies, which ought to remain clearly separated in every discussion, as the usual mixing of them brings confusion, have nevertheless a single background of principles. One of these, which sounds of course utterly commonplace, is that it must remain the central function of the woman to be wife and mother; and the other is that public life and culture, including politics, public morality, science, art, higher education, industry, commerce, law, literature, the newspaper, and the church, are produced, formed, and stamped by men. I do not mean that every woman, or even every man who works for woman's rights in Germany to-day is ready to acknowledge these two principles. The social democratic party, whose spokesman, Bebel, has written a most striking book on the woman, would reject these principles decidedly; and whoever plunges into the literature of the more radical wing must hear at once that free love is the only decent rule, and that every blunder in civilization has come from the old-fashioned notion that men may meddle with public affairs instead of trusting them to the judgment of women. But all these declamations have accomplished nothing; they have not removed a single pebble from the path of the woman. Every tendency that strikes against those two fundamental principles of German conviction has been paralyzed by the spirit of the country. It may be said, without exaggeration, that all the efforts towards the solution of the woman question in Germany strengthen and reënforce the family idea. The only exceptions to this are the

liberal provisions for the highest development of women of unusual talent; but genius must always be treated as an exception, and such exceptions have existed at all times. The few who take the doctor's degree, and who feel the mission for productive work in scholarship can thus be set aside in the discussion, while the situation as a whole suggests most clearly the irregularity of such a vocation, and does not push the average woman into such a path.

The three remaining movements alone have a typical value. But there cannot be the slightest doubt that all that tends to uplift the lot of the working woman protects first the home as a whole in protecting the individual girl or wife or mother. The central endeavor is to give her time for the household cares, and for her functions as a member of the family. The higher education, on the other hand, in so far as it does not aim at the exceptional achievements of the highest scholarship, is almost wholly in Germany of a character to make the young women better fitted for marriage. That the average girl attains to the fulfilment of her hopes only in marriage, is a practical dogma which finds in the wide masses there no doubters, and that, in the better classes, the education of the woman was for a long time so much inferior to that of the man that it seriously interfered with a deeper intellectual comradeship in married life, also cannot be denied. The successful efforts to raise the standard of female education, and to bring it nearer to the level of that of young men has thus the tendency to give new attractiveness to the family life, and to make the girl more marriageable. In the atmosphere of the present German social views,—others may call them prejudices,—these efforts do not contain the least factor that operates against the crystallization of households. The more the horizon of the man widens with the new wealth and expansion of the modern Germany, the more this enables the girl, in the struggle for married existence, to bring into the home a richer intellectual life, for which the need was less felt in the more idyllic and provincial German homes of the past generation. Finally, the increased opportunities for German women to earn their own living make not at all in the Fatherland against the establishment

of the home. These opportunities lift, indeed, from many homes the burdens of misery, and make many empty and wasted lives useful ; but, under the existing conditions of public opinion, there is no fear that they will ever have any chances as substitutes for marriage. They remain, for the large masses, necessarily the second best choice ; a question, on the whole, merely for those who have had no chance to marry, or who are afraid that they will not marry, or who hope that it will somehow help them to marry. In Germany, where the female sex outnumbers the male in such a high degree, and where, besides, about ten per cent of the men prefer to stay in their bachelor quarters, a million women have to seek other spheres than those of the wife ; but no average German girl desires to be one of that million, even did the new opportunities that are constantly opening up offer a little better salary than is the case to-day. And, finally, does any one who has obtained even a glimpse of German civilization need any further proof that the whole public culture there is stamped by man's mind ? No reasonable German considers the function of woman in the social organism less important or less noble than that of man, but the public questions, he wishes to have settled by men. Man sets the standard in every public discussion, for politics and civil life, for science and scholarship, for education and religion, for law and medicine, for commerce and industry, and even for art and literature. Women are faithful helpers there in some lines ; they assist and disseminate, and in art and literature their work may reach the highest level : but the landmarks for every development are set by men, and all this will outlast even the most energetic movements for the higher education of woman, unless the whole structure of German ideals becomes disorganized.

In both respects, in relation to the home and in relation to the standards of public culture, the movements in the interest of women have in America exactly the opposite tendency from those in Germany ; even the same facts have, under the different social conditions, an absolutely different meaning ; the whole situation here militates against the home and against the mascu-

line control of higher culture, and seems to me, therefore, antagonistic to the health of the nation. I shall consider first the influence on the home. I am not so unfair as to deduce my conclusions from the radical speeches of ill-balanced reformers, or from the experimental extravagancies of social iconoclasts; I do not speak of those who want to see the children brought up in government institutions from the first days of life, or of those who consider marriage as the only surviving slavery. No; I do not think of dreams and revolutions; I have the actual, present situation in mind, the facts as they are welcomed by the conservative population. And yet, with this alone in mind, I feel convinced that serious forces are at work to undermine the home, and to antagonize the formation of families.

Of course I will not warm up the old-fashioned argument, which is repeated so often in Europe, that the higher learning makes a girl awkward and ill-mannered, and that the man will never be drawn to such a bluestocking: I take for granted that no American girl loses in attractiveness by passing through a college, or through other forms of the higher and the highest education. But we have only to look at the case from the other side, and we shall find ourselves at once at the true source of the calamity. The woman has not become less attractive as regards marriage; but has not marriage become less attractive to the woman? and long before the Freshman year did not the outer influences begin to impel in that direction? does it not begin in every country school where the girls sit on the same bench with the boys, and discover, a long, long time too early, how stupid those boys are? Coeducation, on the whole unknown in Germany, has many desirable features; it strengthens the girls; it refines the boys; it creates a comradeship between the two sexes which decreases sexual tension in the years of development; but these factors make, at the same time, for an indifference toward the other sex, toward a disillusionism, which must show in the end. The average German girl thinks, I am sorry to say, that she will marry any one who will not make her unhappy; the ideal German girl thinks that she will marry only the man who will certainly make

her happy ; the ideal American girl thinks that she can marry only the man without whom she will be unhappy ; and the average American girl approaches this standpoint with an alarming rapidity. Now is not the last a much more ideal point of view ? does it not indicate a much nobler type of woman,—the one who will have no marriage but the most ideal one, as compared with the other, who in a romantic desire for marriage takes the first man who asks her ? But in this connection, I do not wish to approve or to criticise ; we may postpone that until we have gathered a few more facts and motives. Coeducation is only one ; a whole corona of motives surrounds it.

Coeducation means only equality ; but the so-called higher education for girls means, under the conditions of the American life of to-day, decidedly not the equality, but the superiority of women. In Germany, even the best educated woman—with the exception once more of the few rare and ambitious scholars—feels her education inferior to that of the young man of the same set, and thus inferior to the mental training of her probable husband. The foundations of his knowledge lie deeper, and the whole structure is built up in a more systematic way. This is true of every one who has passed through a gymnasium, and how much more is it true of those who have gone through the university ! Law, medicine, divinity, engineering, and the academic studies of the prospective teacher are in Germany all based essentially upon a scholarly training, and are thus, first of all, factors of general education,—powers to widen the horizon of the intellect. All this is less true in America ; the lawyer, the physician, the teacher, the engineer, obtain excellent preparation for the profession : but in a lower degree his studies continue his general culture and education ; and the elective system allows him to anticipate the professional training even in college. And, on the other side, as for the business man who may have gone through college with a general education in view—how much, or better, how little of his culture can be kept alive ? Commerce and industry, finance and politics absorb him, and the beautiful college time becomes a dream ; the intellectual energies, the

factors of general culture become rusty from disuse ; while she, the fortunate college girl, remains in that atmosphere of mental interests and inspiration, where the power she has gained remains fresh through contact with books. The men read newspapers, and, after a while, just when the time for marriage approaches, she is his superior, through and through, in intellectual refinement and spiritual standards. And all this we claim in the case of the man who has had a college education ; but the probability is very great that he has not had even that. The result is a marriage in which the woman looks down upon the culture of her husband ; and, as the girl instinctively feels that it is torture to be the wife of a man whom she does not respect, she hesitates, and waits, and shrinks before the thought of entering upon a union that has so few charms.

And can we overlook another side of the delightful college time ? No noise of the bustling world disturbed the peace of the college campus ; no social distinctions influenced the ideal balance of moral and intellectual and æsthetic energies : it was an artificial world in which our young friends lived during the most beautiful years of their life. Can we be surprised that they instinctively desire to live on in this peculiar setting of the stage, with all its Bengal lights and its self-centred interests ? They feel almost unconsciously that all this changes when they marry, when they are mistresses of a household,—a situation which, perhaps, means narrowness and social limitation. They feel that it would be like an awakening from a lofty dream. There is no need to awake ; the life in the artificial setting of remote ideals can be continued, if they attach themselves, not to a husband and children, but to clubs and committees, to higher institutions and charity work, to art and literature ; if they remain thus in a world where everything is so much more ideal than in that ungainly one in which children may have the whooping-cough.

Of course all these are not motives that prohibit marriage ; they may not even, in any individual case, work as conscious considerations ; they are only subconscious energies, which show their effects merely if you consider the large groups ; they are

the little forces, the accumulation of which pushes the balance of motives perhaps so little that they remain unnoticed by the girl who is undecided whether to accept him; and yet they are efficient.

The college studies do not merely widen the horizon; they give to many a student a concrete scholarly interest, and that is, of course, still truer of the professional training. The woman who studies medicine or natural science, music or painting, perhaps even law or divinity, can we affront her with the suggestion, which would be an insult to the man, that all her work is so superficial that she will not care for its continuation as soon as she undertakes the duties of a married woman? Or ought we to imply that she is so conceited as to believe that she is able to do what no man would dare hope for himself; that is, to combine the professional duties of the man with the not less complex duties of the woman? She knows that the intensity of her special interest must suffer; that her work must become a superficial side-interest; that she has for it but rare leisure hours; and no one can blame her, however much she may love her own home, for loving still more the fascinating work for which she was trained.

All these tendencies are now psychologically reënforced by other factors which have nothing to do with the higher education as such, but are characteristic of the situation of the woman in general. The American girl, well or carelessly educated, lives in the midst of social enjoyments, of cultured interests, of flirtations, and of refinements—what has she to hope at all from the change which marriage brings? Well, the one without whom her heart would break may have appeared—there is then no use of further discussion. But it is more probable that he has not appeared, while she, in the meanwhile, flirts with half a dozen men, of whom one is so congenial, and another such a brilliant wit, and the third such a promising and clever fellow; the fourth is rich, and the fifth she has known since her childhood, and the sixth, with the best chances, is such a dear, stupid little thing. What has she really to gain from a revolution of her individual fate? Is

there anything open to her which was closed so far? Between the social freedom of a German girl and a German wife there is not that gulf which separates the two groups, for instance, in France; and yet the change from the single to the married life is an absolute one. Even in Germany, the joys of girlhood have something of the provisional in their character, like the temporary filling of a time of preparation for the real life. In this country the opposite prevails. Every foreigner sees with amazement the social liberty of the young girl, and admires no great American invention more than the unique system of the chaperon. He is thus hardly surprised that the American girl almost hides the fact when she becomes engaged; she has to give up so many fine things; a period almost of resignation has to begin, and no new untried social enjoyments are in view.

But the American girl has not only no new powers to expect; she has in marriage a positive function before her, which she, again unlike her European sister, considers, on the whole, a burden: the care of the household. I do not mean that the German woman is enraptured with delight at the prospect of scrubbing a floor; and I know, of course, how many American women are model housekeepers, how the farmers' wives, especially, have their pride in it, and how often spoiled girls heroically undertake housekeeping with narrow means, and that, too, much more often than in Germany, without the help of servants. And yet, there remains a difference of general attitude which the social psychologist cannot overlook. The whole atmosphere is here filled with the conscious or unconconscious theory that housework is somewhat commonplace, a sort of necessary evil which ought to be reduced to a minimum. I do not ask whether that is not perhaps correct; I insist only that this feeling is much stronger here than in Germany, and that it must thus work against domestic life. I point merely to a few symptoms of this phenomenon. I think, for instance, of the boarding house life of married people, an anti-domestic custom which has such wide extension in America, and which is not only unknown, but utterly inconceivable in Germany. But also where a house is kept, the outsider

has the feeling that the young wife enjoys her home as the basis of family life and as a social background, but that she is not trained to enjoy it as a field of domestic activity. The German girl anticipates from marriage, and not as its smallest enjoyment, the possession of a household after her own domestic tastes, and according to her talent for housework. Her whole home education is a preparation for this, and here the German mother finds a large share of her duties. All this may be, in a way, an unpractical scheme; it may be wasted energy; it may be better to learn those functions in a more mature age, in which the mind approaches them more theoretically; but this at least is certain, that the German way develops a more instinctive inclination toward the home life.

The general American tendency to consider housework as a kind of necessary evil, which as such cannot appeal to those who have free choice, is not less evident in the lower strata of the community. The conviction of every American girl that it is dignified to work in the mill, but undignified to be a cook in any other family, would never have reached its present intensity if an anti-domestic feeling were not in the background. Exactly the same tendency appears, therefore, when work for the parents is in question. The laborer's daughter has, of course, not such a complete theory as the banker's daughter; but that it is dull to sit in the kitchen and look after the little sister, she too knows. In consequence, she also rushes to the outside life as saleswoman, as industrial laborer, as office worker: it is so exciting and interesting; it is the richer life. The study of the special cases shows, of course, that there are innumerable factors involved; but if we seek for the most striking features of woman's work, here and abroad, from a more general survey of the subject, it would seem that the aim of the German woman is to further the interests of the household, and the American woman to escape from the household.

Germany, with its very condensed population, was not able to do without the help of female muscle in running the economic machine; America, with its thin population and its great natural

richness, does not really need this. In Germany almost a fourth of the women are at work; in America hardly more than a tenth. Above all, in Germany the women are doing the hard work; two and a half millions being engaged in agriculture against half a million here, of whom the greater part are negroes. The condition of the country as a whole does not demand woman's aid; man's labor can support the households of this country, and, economically, the country would be better off if female labor were almost entirely suppressed, both by prejudice and by institutions, since it lowers the wages of the men, and wastes domestic energies which, in a more intensified effort, would save the more. If, in spite of these economic conditions, woman's labor, other than of a domestic character, has become a socially necessary factor, it must have been, first of all, because the American woman feels that it is easier to perform the labor of the man than to make an increased domestic effort. It is the disinclination to domestic cares that has slowly created the present situation, and this situation itself, with its resulting distribution of wages, has necessarily the effect of reënforcing this motive, and of pushing the woman from the hearth to the mill and the salesroom, the office and the classroom.

I have mentioned merely mental factors which are to be taken into account in their subconscious coöperation against family life; but the mental strain and excitement to which young girls are subjected, and the lack of social restraint, the constant hurry, and, above all, the intellectual over-tension must influence the nervous system, and the nervous system must influence the whole organization of that sex which nature, after all, has made the weaker one. The foreigner cannot see these charming American girls without a constant feeling that there is something unhealthy in their nervous make-up, an overirritation, a pathological tension, not desirable for the woman who is preparing herself to be the mother of healthy children. The vital statistics tell the whole story. The census of 1890 showed that there were born per thousand of the whole population in Prussia 36.6, in Massachusetts 21.5, and this diminished birth rate is still much

lower in the native families here than in those of foreign birth, —the Irish or Swedish or German.

If we will consider this social background, this general social situation, we shall perhaps see the problem of higher education from another point of view; we shall begin to feel that under these conditions, which in themselves work so clearly against the home, it must be doubly dangerous to reënforce those tendencies in woman's higher education which, as such, impel toward a celibacy of spirit; and we foreigners ask ourselves then instinctively, "Is the woman's question really solved here in the most ideal way?"

The answer which every one of my American friends, male and female, has ready on his lips is very simple. Can you deny, they ask, that the woman whom you accuse is a higher type of human being than any other? Do you want her to be untrue to her ideals, to seek marriage just for marriage's sake, instead of waiting for the man of her highest hopes? But such answers do not help me at all. It may be that I am willing to concede that place of honor to the individual girl here, in comparison with the girl of other nations, but the real problem cannot be even approached as long as the individual is in question. Here lies the point where, according to German convictions, the shortcomings of American civilization arise: to the American mind the community is a multitude of individuals, to the German mind, it is above all a unity. The American sees in the State an accumulation of elements of which each ought to be as perfect as possible; the German sees in it an organism in which each element ideally fulfills its role, only in so far as it adjusts itself to the welfare and perfection of the whole. It is the atomistic idea of the community as against the organic one; the naturalistic aspect as against the historical; the State as a sand-hill where every grain is independent of every other, against the State as a living being where every cell is in internal connection with every other. If it were really the goal of civilization to inspire the individuals that are now alive with as high aims as possible, the American system would be, at least with regard to

the women, an ideal one ; but if, to mention at first this single point, such a system works against the creation of substitutes for the individuals who have outlived their life, and thus destroys in the nation the power of rejuvenation, it is clear that the goal was wrongly chosen, and that the standard of perfection cannot be made dependent merely upon personal achievement.

Indeed, not the slightest reproach attaches to the individual girl who does not wish to marry because her education and her social surroundings have given her ideals which she can fulfill only in celibacy ; she stands individually much higher than the other, who with the same views of life nevertheless marries, and perhaps becomes untrue to her ideals, sacrificing her lofty scholarly ambitions for mere idle comfort. But the reproach must be directed against the community which gives to the girls an education and an inspiration which lead to such a conflict, and thus antagonize the natural energies of a healthy nation. Such a system is made according to an artificial ideal ; there is in the world of experience no individual which rests and reposes in or on itself : the natural unity is the family. Every system of public spirit which in its final outcome raises the individuals, but lowers the families, is antagonistic to the true civilization of the people, and its individualistic, brilliant achievements are dearly bought illusions of success. No one will dare say to a woman, This is the best, but you, for one, ought to be satisfied with the second best. But we have the right to demand from the community that the woman be taught to consider as the really best for her, what is in the highest interests of the whole of society, even if it be second best for the individual.

What can be done ? Is it necessary to lower the standard of woman's education in all levels of society in order to reënforce the family feeling ? Must we throw away all that is achieved for the self-preservation of the race ? or is there possibly a way to maintain this glorious individual perfection, and yet to serve the purposes of the organic community ? But the answer to this practical question may be postponed until we have considered, more briefly, the other factor to which I have already referred.

I affirmed that in Germany all the movements in the field of the woman question are not only in harmony with, and in the interest of, the family, but that, above all, the whole public life bears, as a matter of course, the stamp of the man. That is, in my opinion, the second great difference. The American system injures the national organism, not only because it antagonizes the family life, and thus diminishes the chances for the future bearers of the national civilization, but it has, secondly, the tendency to feminize the whole higher culture, and thus to injure the national civilization itself.

If I speak of public life here, I do not mean politics in the technical sense. The arguments for and against the participation of women in politics, the reasons for and against woman suffrage, are certainly of a peculiar kind ; I have often listened to both sides in these discussions, and have always, as long as one side was pleading its cause, felt strongly in favor of the other side. If I am, on the whole, opposed to woman suffrage, it is because it belongs to those factors which we have discussed : it would help to draw the interests of individual women away from domestic life. But I do not think that it would have a serious bearing on that point which we have now to consider, the effemination of public life ; politics would certainly be influenced as to its character if woman suffrage existed everywhere ; it would, in some ways, probably suffer through hysterical sentimentality, illogical impulses, and the lack of consistent obedience to abstract law ; but it would probably be, on the other hand, in many respects ennobled and moralized, softened and elevated. There would be, on the whole, no serious disadvantage to be feared for political life itself, because the men would always remain the backbone of the political parties. Politics in America so immediately and directly penetrates man's whole welfare, his commerce and industry, his income and his expenses, his rights and his duty, that there is no danger that he would ever allow the political life to pass from his hands into those of the woman ; a real effeminizing of political life is thus no probable danger. Of course, so long as only four of the less developed States of the Union have

introduced woman suffrage, the question is of no practical importance.

The public life that I have in mind is the public expression of the ideal energies, the striving for truth and beauty, for morality and religion, for education and social reform, and their embodiment, not in the home, but in the public consciousness. In Germany no one of these functions of public life is without the support and ennobling influence of active women, but decidedly the real bulk of the work is done by men; they alone give to it character and direction, and their controlling influence gives to this whole manifoldness of national aims its strenuousness and unity; to carry these into the millions of homes and to make them living factors in the family, is the great task of the women there. Here, on the other hand, the women are the real supporters of the ideal endeavors: in not a few fields, their influence is the decisive one; in all fields, this influence is felt, and the whole system tends ever more and more to push the men out and the women in. Theatre managers claim that eighty-five per cent of their patrons are women. No one can doubt that the same percentage would hold for those who attend art exhibitions, and even for those who read magazines and literary works in general, and we might as well continue with the same somewhat arbitrary figure. Can we deny that there are about eighty-five per cent of women among those who attend public lectures, or who go to concerts, among those who look after public charities and the work of the churches? I do not remember ever to have been in a German art exhibition where at least half of those present were not men, but I do remember art exhibitions in Boston, New York, and Chicago where according to my actual count the men in the hall were less than five per cent of those present. As a matter of course, the patron determines the direction which the development will take. As the political reader is more responsible for the yellow press than is the editor, so all the non-political functions of public life must slowly take, under these conditions, the stamp of the feminine taste and type, which must have again the further effect of repelling man from

it more and more. The result is an effemination of the higher culture, which is antagonistic to the development of a really representative national civilization, and which is not less unsound and one-sided than the opposite extreme of certain Oriental nations where the whole culture is man's work, and the woman a slave in the harem.

The woman, and sometimes even the indolent man who wants to get rid of the responsibility of something he does not care about, says simply that this is all right. As the facts show—they argue—that the woman is not inferior in intellectual and æsthetic energies, not inferior in earnestness and enthusiasm, why not entrust her with the national culture, why not give her full charge of art and literature, education and science, morality and religion—man has a sufficient number of other things to do. But it is simply not true, and cannot be made true by any dialectics, that the minds of man and woman are equal, and can be substituted the one for the other, without changing the entire character of the mental product. It is not true that men and women can do the same work in every line. Earnestness certainly the women have. However large the number of those who may meet their public duties in a spirit of sport or amusement or ennui, the majority take these duties seriously; and the college girl especially comes home with a large amount of earnestness in the cause of reform and of the higher functions of the national life. The only misfortune is that earnestness alone is not physical energy, that good will is not force, that devotion is not power. But her lack of physical power and strength would be less dangerous to the undertaking if her intellectual ability were equal to that of the man. But here the social psychologist can feel no shadow of a doubt that neither coeducation nor the equality of opportunities has done anything to eliminate those characteristic features of the female mind which are well known the world over, and which it is our blessing not to have lost. The laws of nature are stronger than the theories of men.

To express the matter in a psychological formula, on which the observations of all times and all nations have agreed: in the

female mind the contents of consciousness have the tendency to fuse into a unity, while they remain separated in the man's mind. Both tendencies have their merits and their defects; but, above all, they are different, and make women superior in some functions, and man superior in some others. The immediate outcome of that feminine mental type is woman's tact and æsthetic feeling, her instinctive insight, her enthusiasm, her sympathy, her natural wisdom and morality; but, on the other side, also, her lack of clearness and logical consistency, her tendency to hasty generalization, her mixing of principles, her undervaluation of the abstract and of the absent, her lack of deliberation, her readiness to follow her feelings and emotions. Even these defects can beautify the private life, can make our social surroundings attractive, and soften and complete the strenuous, earnest, and consistent public activity of the man;—but they do not give the power to meet these public duties without man's harder logic. If the whole national civilization should receive the feminine stamp, it would become powerless and without decisive influence on the world's progress.

On the surface, it seems otherwise. Every one thinks at once of some most talented women, whose training in strenuous thought is not inferior to that of men, and every one knows that our female students are as good scholars as the male ones. Those few exceptions I need not to discuss here; the genius is *sui generis*; but the case of the female university students does not at all suggest to me a belief in their intellectual equality with men. Certainly the average female student ranks as a pupil equal to the young man, but that does not exclude the fact that her achievements and his are profoundly different; she is more studious, and thus balances certain undeniable shortcomings, and the subjects in which she excels are other than those in which he is most interested. Above all,—and here I touch an important point too much neglected,—the difference between the students appears relatively small here, because the historic development of the American college has brought it about that the whole higher study bears far too much the type of the feminine attitude

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towards scholarship; and this is the reason why the scholarly outcome has so far been on the whole unsatisfactory. In Germany, the university professors who are opposed to the admission of women to the university take for granted that the women will be industrious and good pupils, but insist that they will lower the standard of the really scholarly work, because they will take, in accordance with the feminine mind, a passive, receptive, uncritical attitude toward knowledge, while the whole importance of German scholarly life lies in its active criticism, its strength of research and inquiry. All that the German professors now fear from the intrusion of women was precisely the habitual, characteristic weakness of the American college until a decade or two ago. These colleges were excellent as places for the distribution of knowledge, but undeveloped as places of research; they were controlled by a passive belief in intellectual authorities, but little prepared to advance the knowledge of the world; in short, they took the receptive, feminine attitude—no wonder that the women could do as well as the men. But in recent time the American university strives with vigorous efforts toward the realization of the higher ideal; the test of the question whether the dogmatic mind of the average woman will prove equal to that of the average man, in a place controlled by a spirit of critical research, has simply not been made so far. If I except the few rare talents, which have been left out of our discussion, since they do not require that systems be adjusted to them, I cannot say that I have gained the impression that the spirit of research would be safe in the hands of the woman. But what a calamity for the country if this great epoch in the life of the universities were ruined by any concessions to the feminine type of thinking! The nearer America approaches a state of university work that corresponds to the highest achievements of European universities; the more it develops real universities beyond the collegiate institutions for receptive study; the more the equality of the two sexes must disappear in them,—the more must they become, like the European institutions, places for men, where only the exceptional women of special talent can be welcomed,

while the average woman must attend the woman's college with its receptive scholarship. If we keep up an artificial equality through the higher development of the present day, American intellectual work will be kept down by the women, and will never become a world power.

How differently, when compared with that of men of the same class, the female mind works, we see daily around us when we turn our eyes from the educated level down toward the half-educated multitude. Here we are confronted with the woman who antagonizes serious medicine through her belief in patent medicines and quackery; the woman who undermines moral philosophy through her rushing into spiritualism and every superstition of the day; the woman who injures the progress of thought and reform by running with hysterical zeal after every new fad and fashion introduced with a catchy phrase. A lack of respect for really strenuous thought characterizes woman in general. Dilettantism is the key-note. The half-educated man is much more inclined to show an instinctive respect for trained thought, and to abstain from opinions where he is ignorant. But the half-educated woman cannot discriminate between the superficial and the profound, and, without the slightest hesitation, she effuses, like a bit of gossip, her views on Greek art or on Darwinism or on the human soul, between two spoonfuls of ice-cream. Even that is almost refreshing as a softening supplement to the manly work of civilization, but it would be a misfortune if such a spirit were to gain the controlling influence.

That such effemination makes alarming progress is quickly seen if we watch the development of the teacher's profession. I have seldom the honor of agreeing with the pedagogical scholars of this country, but, on this point, it seems to me, we are all of the same opinion: the disappearance of the man from the classroom, not only of the lower schools, but even of the high schools, is distinctly alarming. The primary school is to-day absolutely monopolized by woman teachers, and in the high school they have the overwhelming majority. The reason for this is clear: since the woman does not have to support a family, she can work

for a smaller salary, and thus, as in the mills, the men tend more and more toward the places for which women are not strong enough, in the schools, too, female competition must, if no halt is called, bring down salaries to a point from which the supporter of the family must retreat. It would be, of course, in both cases better if the earnings were larger, and more men were thus enabled to support families, while in the schoolroom, as in the mill, the female competitor brings the earnings down to a point where the man is too poor to marry her,—a most regrettable state of affairs. But the economic side is here not so important as the effect on civilization. Even granting, what I am not at all ready to grant, that woman's work, preferred because it is cheaper to the community, is just as good as man's work, can it be without danger that the male youth of this country, up to the eighteenth year, are educated by unmarried women? Is it a point to be discussed at all that "nascent manhood requires for right development manly inspiration, direction, and control"? Where will this end? That very soon no male school-teacher of good quality will survive is certain, but there is no reason to expect that it will stop there. We have already to-day more than sixty per cent of girls among the upper high school classes, and this disproportion must increase. Must we not expect that in the same way in which the last thirty years have handed the teacher's profession over to the women, the next thirty years will put the ministry, the medical calling, and, finally, the bar also into her control? To say that this is not to be feared because it has never happened anywhere before is no longer an argument, because this development of our schools is also new in the history of civilization. There was never before a nation that gave the education of the young into the hands of the lowest bidder.

The comic papers prophesy alarming results for the man; while the woman teaches and preaches and argues before the court, he will have to do the cooking, mending, and nursing at home. That is absurd. There is enough room for the development of man in the present direction. Commerce and industry, politics and war, will furnish no lack of opportunities for the

employment of all his energies ; but one thing is certain : he will be a stranger to the higher culture of the nation. And this condition, in which the professional callings, the whole influence on the development of the younger generation, all art and science and morality and religion, come to be moulded and stamped by women, is precisely the one which some call equality of the sexes ! The truth is evident, here as everywhere, that equality cannot be brought about artificially. To force equality always means merely shifting the inequality from one region to another, and if the primary inequality was the natural one, the artificial substitute must be dangerous if it be more than a temporary condition. Nature cannot act otherwise, because nature cannot tolerate real equality. Equality means in the household of nature a wasted repetition of function ; equality, therefore, represents everywhere the lower stage of the development, and has to go over into differentiation of functions. Nature cannot be dodged, and the growth of nations cannot escape natural laws. To say that man and woman must be equal demands a natural correction by bringing in the differentiation of function at some other point : you may decree equality to-day, but nature takes care that we shall have, in consequence, a new kind of inequality to-morrow. The nation has decreed that the differences of sex shall be ignored in education, and in the choice of callings, and the outcome is a greater inequality than in any other country, an inequality in which men are turned out of the realms of higher culture.

But, as soon as we take the point of view of social philosophy, we understand at once the deeper meaning of the whole phenomenon and its probable development. This cry for equality, with its necessary results in a new form of crass inequality, then manifests itself as a great scheme of nature in the interests of the conservation of the race, in keeping with the special conditions under which the nation has received its growth. Under the ordinary conditions, the material opening and settling of a country move parallel with the development of the inner culture, and the man is thus able to meet the requirements of this twofold public task ; he

gives his energies to the material and political necessities so long as the mental and spiritual culture is low, and in proportion as he is freed from the rudimentary needs that pertain to the support of the nation, he turns to the inner culture, that of education and art, and so on, while the woman, at every stage, cares for the private life of the family. In America, this normal course was changed, because the material opening of the country, the unfolding of its natural resources, coincided with the possession of a most complex inner culture brought over from Europe ready-made, not grown of the soil. Hence a new division of labor had to be discovered to meet those material exigencies which demanded man's full energy, and man's side-function, the work of the higher culture also. This side-function had to be assumed by the woman; she had to care for the inner culture of the nation, that the arms of the man might be free for the more immediate work, the settling of the continent, the political organization, and the development of the national wealth. This was, under these unusual conditions, the only way of preserving and fostering the high European culture; if women had not temporarily taken this function from man, it would have been wholly lost in the wear and tear of the commercial and political adolescence of the nation. It was, then, the special mission of the American woman to become the bearer of the higher, inherited culture of the nation by the artificial development of an intellectual superiority over the man.

But if this be true, it is clear that such vicarious functioning must cease as soon as those two peculiar conditions should arise which manifestly exist at the present time. The first of these conditions is that this female superiority should reach a point where it begins to effeminate the higher culture, and where it becomes antagonistic to family life; thus positively injuring the organism of the race. The other condition is that the material establishment of the country should have attained its completion; the ground mastered, the sources of national wealth sufficiently developed to allow room for man's effort in other directions. No doubt this condition also is fulfilled

to-day ; the West is opened ; the whole continent is economically subjugated ; a net of transportation covers the whole land ; wealth abounds in a sufficient number of families, down to the second and third generations, to insure the building up of a leisure class ; and the time has come when the American man can take his share, like the European, in the spiritual culture of his country. If the American man will but turn his real energies to the world of spiritual goods, then the two great evils which we have discussed will both be cured by the one remedy, and at one time, while the woman will not in any respect be the loser. If man takes the part that belongs to him in the higher culture, this, instead of being emasculated, will show that perfect blending of human energies in which the strength of the man will be softened by pure womanhood, and, at the same time, the woman, who will feel the greater strength in the man of equal culture, will shrink no longer from marriage, and will feel attracted by that truer companionship in which the real labor is divided ; the public function given to the man, the domestic function to the daughter and sister, to the wife and mother. That is the state at which we aim in Germany ; much has still to be done there to give to the average German woman the thorough education of the American ; but that will soon come. In any case, even the best training of the woman must support in Germany the family idea, and the man will continue to be the mainstay of the ideal culture. We Germans feel sure that this will not be endangered, even if we fully imitate the splendid college life of American girls. Therefore, no one can suggest that woman's education in this country ought to take any steps backward ; all the glorious opportunities must remain open, and only one practical change must come in response to the urgent needs of our period ; the American man must raise his level of general culture. In short, the woman's question is in this country, as ultimately perhaps everywhere, the man's question. Reform the man, and all the difficulties disappear.

We know that in Paradise Eve followed the seducing voice of the serpent, and ate the fruit from the tree of knowledge, and

gave of it unto Adam. The college bred Eve has no smaller longing for the apple of knowledge ; but the serpent has become modern, and his advice has grown more serpent-like than ever : “ Eat of the apple, but give not unto Adam thereof.” The Bible tells us that when they both ate, they were cast out from Paradise, but saved the race. However it may be with the modern paradise, the race will be saved only on the condition that Adam receive his share of the fruit. Listen not to the serpent, but divide the apple !



THE ENCROACHMENT OF THE AMERICAN COLLEGE UPON THE FIELD OF THE UNIVERSITY

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VERY teacher who is properly qualified for his position is under the constant temptation to give his pupils more than they can receive. He wishes to offer them his best. He longs to interest them in what most interests him. On this he can talk from the heart, and with the freshness that attends the communication of a recent discovery. To wear away the hours in the humbler task of making plain the elements of knowledge, is to risk the loss of enthusiasm and the substitution of routine for inspiration.

Nevertheless, the elements of knowledge come before knowledge, and the class can never be raised to the level of the instructor. When they approach that level, it is time for them to be dismissed. The teacher who knows no more than his disciples is out of place—even in the university. He is still more certainly and clearly out of place in school or college.

A college, properly so called, is simply a kind of high school. It is not its design to speak the last word in education. That belongs to the university.

Its purpose is to lead up to a wise participation in life. Whatever our part in society is to be, the college is to prepare us to take it becomingly and effectively.

"Every man," said Dr. Arnold, in discussing the education of the middle classes, "from the highest to the lowest has two

businesses: the one his own particular profession or calling, be it what it will, whether that of soldier, seaman, farmer, lawyer, mechanic, laborer, etc.; the other his general calling, which he has in common with all his neighbors, namely, the calling of a citizen and a man. The education which fits him for the first of these two businesses is called professional: that which fits him for the second is called liberal."

The American college in its infancy fulfilled this office well: it did not overrate it, nor seek to get a very high standard of learning. It took the youth just when he was passing from boyhood into a larger life. On the fast growing body and mind and soul, in that hour of plasticity, the college impressed itself with a stamp that was ineffaceable. As full manhood came, it sent him forth to gain his second education for his second business, under other auspices. It had prepared him for good citizenship. That had been its end; and, the end attained, it had no other function to perform.

It is to give this kind of liberal education that the English universities, until a recent period, confined their endeavor. They were miscalled universities. Each was a mere cluster of boarding schools of a higher order. The course of study, from the first, included the mediæval *Trivium*, grammar (or philology), logic, and rhetoric, and more or less of the *Quadrivium*, arithmetic, geometry, astronomy, and music. These were the seven arts of life. The three philosophies, moral philosophy, metaphysics, and history, were added later.¹ The university, as a university, in the seventeenth century, when the emigration to New England set in, taught nothing in fact, little in name. It was an examining body, from which came the academic degrees, and its examinations were practically confined to those who were seeking that of Bachelor of Arts. The higher degrees could be had almost as a matter of course after a certain lapse of time, on payment of the required fees. Study was centred in the college.

(1) Malden, *Origin of Universities*, p. 119.

This scheme of higher education furnished the model for the American college down to the latter part of the nineteenth century. It called itself, ordinarily, what it was,—a college, and not a university; and there was but one college in a place. Otherwise it differed little from the English type, except for the lengthening of the course from three years to four, where, indeed, it had stood in England in the reign of Elizabeth.¹

For two hundred years, the sum of knowledge required for admission remained substantially unaltered. The number of subjects for the entrance examination was increased from time to time, but this was balanced by a lower standard of acquirement with respect to the languages.² The college course itself, however, was gradually made more difficult. The natural sciences gained a large place. Political economy, the higher mathematics, and intellectual philosophy were added. The age thought proper for entrance was correspondingly raised. Instead of fourteen, it became, by the middle of the nineteenth century, sixteen or seventeen.

The earliest courses of study distinctively characteristic of a university were those in medicine, offered at Philadelphia, in 1765, in connection with the college founded by Franklin, which grew to be the University of Pennsylvania. The first classes in law were organized under the administration of Governor Jefferson in Virginia, at William and Mary College, in 1779;³ John Marshall being one of the earliest students. Next, in 1784, came a school of theology, in connection with Rutgers College.⁴

We now reach the era of transformation. The College has put forth an outshoot. There are now, in truth, two colleges: a college of arts, and by its side a college of medicine or theology,

(1) *Ibid.*, p. 124.

(2) See Wayland, *Thoughts on the Present Collegiate System in the United States*, p. 77, ff.

(3) H. B. Adams, on *Jefferson and the University of Virginia*, chap. iii.

(4) *Report of United States Commissioner of Education for 1898-9*. Vol. ii. chap. xxxviii.

each under a separate faculty, but subject to the same government. It is not long before the name of university is assumed, or if it had been already given, is measurably justified. Harvard led off in the early part of the nineteenth century with its group of four colleges of arts, medicine, theology, and law.

Cardinal Newman has said that a great school of learning fell under the law of demand and supply, but that the supply must precede the demand.¹ This was true of the United States. University instruction was offered before it was really called for. Hence came the temptation to force it upon the college student. By 1842, President Wayland declared that the amount which our colleges sought to teach in four years had been doubled, if not trebled, with the result that the work done was but half done.² He met the difficulty, at Brown, as Jefferson had met or avoided it in the University of Virginia, by introducing elections between courses, and general university methods. The experiment, but partially successful there, was repeated at Harvard. Here the new theory of liberal education took deeper root, and it has now spread over the country.

The principle of election has kept the number of hours of classroom work down to nearly the original limit; but the character of the work has become very different. The studies of Junior and Senior year are no longer such as a youth of sixteen or seventeen can enter upon with profit. He finds it not altogether easy even to take up those prescribed or offered during Freshman and Sophomore years. These are not dissimilar to those pursued in the last two years of the gymnasium, from which the German youth passes to the university. If he completes them satisfactorily by the time he is nineteen, he does sufficiently well.

But of these Freshman and Sophomore studies, most do not differ in kind from those taught at our preparatory schools. More Greek and more Latin are read, but both are read in much the

(1) *Historical Sketches*, iii., p. 165.

(2) *Thoughts on the Present Collegiate System in the United States*, p. 81, ff.

same way. Sometimes they are read and taught more carelessly, because the principal of the high school or academy is a riper and better scholar than the college tutor. So it is with the modern languages and mathematics. Secondary education, in a word, is half finished, and the most important part of it wholly finished, before college is entered.

The preparatory school has thus wrested one or two years from the college. It aspires to do what the college formerly did, and generally did better. It keeps the youth among schoolboys at a time of life when his grandfather was half through his college course.

The length of that course, in the meanwhile, remains the same. It was four years, at a time when every bright boy of fourteen could fit himself to enter upon it to advantage. It is four years still, when such a lad must spend two or three years more at a preparatory school, and the average youth is content to gain admission at eighteen or nineteen.

The ordinary college graduate is thus sent out to learn his second business, and gain his second education, when he is twenty-two or twenty-three. Two years of a general university education have been forced upon him. He asked for a liberal education to make a man of him. He has been told to get half of this at a preparatory school, and, then, that he could not stop when his college had completed it, according to the ideas of all former generations, in two years more, but must forfeit his right to a degree, unless he remained for an equal period as a university student, and went out a specialist in some particular branch of the higher learning.

Until within the last thirty or forty years, the few ambitious students who desired a general education of greater breadth than that offered by the ordinary college course, had gone to foreign universities for it. More such had lingered a year or two, as resident graduates, with their *alma mater*, seeking instruction in higher walks of learning from their old teachers, who were only too glad to give it as they found opportunity, and under whose guidance the college library became a better teacher still. It is a subject of congratulation that wider opportunities are now

offered here. But let us call things by their right names. They are the opportunities that belong not to a college, but to a university. The American college has lost its original and proper type, wholly in the Eastern States, and largely in all. The number and range of elective studies have been so far increased as to turn the Senior, and in great part the Junior, year also, into university years.

But only studies that belong to a single department of a university are thus cultivated or imposed. This department is that of philosophy and the liberal arts. If chemistry be taught, it is not with a view of making chemists; if law, it is with no intent of training lawyers. Whatever the character of the instruction offered, this is still for the purpose of giving a liberal education and a better view of the general humanities of life.

If we were a race of Methuselahs, this would be well. If we had no second education to get, it could be tolerated. But this second, bread-and-butter education is quite as important as the first; and it is toward the acquisition of this that no small part of the first is directed. College is to discipline and fertilize the mind. University instruction is to plant it for a particular crop. For the few students who intend to make teaching their life-work, the scheme of collegiate education which we have thus evolved, is not ill-adapted. It may suit, also, some of the gilded youth, whose future is to be, at best, one of literary leisure. But, on the rank and file of the student body, it lays a burden too heavy to be borne. It holds them back from the world to which they belong, from the profession to which they aspire, from the busy activities of bread-winning, which, after all, bring out of most men the best that is in them, and stimulate mental effort by presenting every hour a new reward, or if our work be bad, by imposing a new penalty.

"The ledger of the Almighty," wrote Huxley to Charles Kingsley, "is strictly kept, and every one of us has the balance of his operations paid over to him at the end of every minute of his existence." We may not all agree with the full thought in this flash from the great agnostic's vigorous pen. There may be

a balance held in reserve to be the subject of an extra dividend, for good or ill, to be looked for under different conditions, and in another state of being. But that the man who is at work in the world in his chosen line is generally successful or unsuccessful in it according to the measure of his special preparation for its demands, few will dispute. The physician must be thoroughly trained in medicine, the minister in divinity, the lawyer in law, the scientist in science. He who would practice a profession cannot rely on general culture, nor can he rely on special culture in general philosophy or literature; he must have what only comes from close, technical, long-continued study of his own particular art and work.

Nor is any profession now taught without reference to the scientific view of its history and office. It is taught also from the standpoint of letters.

Technical studies can never again be divorced from literature. That is, at all events, one mode of their expression, and no other can replace it. The teacher must seek its aid, and the scholar also, if either would understand the other. Huxley, to quote him again, once said broadly that "Science and literature are not two things, but two sides of one thing." Certainly is this true of modern science as taught in the modern university, whether it be the science of metaphysics, law, medicine, divinity, or electric force.

Precisely in the measure that the humanities have forced their way into the professional schools is there less occasion to prolong their cultivation in the earlier years of a student's life. He is not to lose all contact with what is universal when he begins the special pursuit of what is particular. Grace as well as strength, feeling as well as skill, will still be held up before him as ideals and even as ends. Perhaps they will appeal to him more strongly, now that he can see with greater clearness how they intertwine themselves with what is best in every work of man. He may welcome them more gladly, because they come to him by the way and on the march. He had a right to be impatient, when kept back, of what kept him back. He knew that

at one and twenty, when the State thought he should be fit for the full privileges of citizenship, either he or the plan of his education must be at fault, if he were not ready to assume them with a true sense of his responsibility and an intelligent understanding of the principles that should guide his course. He saw that what former generations had deemed a liberal education his teachers no longer called such; but he was far from satisfied that they were right. He felt a call within him to be up and doing, playing a man's part, and working out his own place in the world. To this the professional school opens the door, and what one learns there, he has every motive to learn well.

President Eliot has been the dominating force in American collegiate education during its transition from old ways to new ways. He is, more than any other man, responsible for increasing the requirements for admission to the college, and from giving it, from the outset, a university trend, if, indeed, we may not now say, a university character. He is therefore, more than any other man, responsible for deferring the time of graduation to so late a period.

He was also one of the first to recognize that this result is an unmixed evil. His remedy for it would be short and sharp. He proposes to reduce the college course as England did, from four years to three.

Thus far he has not succeeded in bringing about the full adoption of this plan. It has, however, been put into practical effect at Harvard, and by many of our other universities, which so arrange the number of courses necessary as a prerequisite to a degree in arts, as to make it easy for any diligent student to gain this by three years work.¹ This leaves his Senior year at his own

(1) Nearly half of the Harvard Seniors now avail themselves of this privilege. *Report of the United States Commissioner of Education for 1898-9, ii., 1681.* Yale has moved more slowly in this direction. She allows, as yet, only five hours in the first year in the Law School to be elected by her college Seniors, unless they have previously completed a strictly collegiate course, averaging for the entire three years fifty-five hours a week of classroom work. Comparatively few are able to answer these demands.

disposal, and he is at liberty to spend it at any of the professional schools of the university, where it counts as one of the years required as a condition of the professional degree. He can also pursue studies of a general description, and have that year included as one in the course leading to the degree of Master of Arts; thus taking two degrees in Arts at the same commencement.

The same policy has been adopted in some of the colleges which have added one or more university departments, and without yet assuming to be universities in name, confer the doctorate in branches of advanced or professional learning. Dartmouth, for instance, allows her Seniors to substitute for the elective studies especially offered to their class, the work of the first year in her School of Civil Engineering, or in that of Medicine. They will then take their degree of Bachelor of Arts with their college class, but the year will also be reckoned as one of those spent in the regular professional course leading up to that of Civil Engineer or Doctor of Medicine, as the case may be. Similar provision is made also for those desiring to enter the Amos Tuck School of Administration and Finance.

This is a logical application of the elective system. It is also not an unfair adjustment of the whole difficulty, so far as concerns those men who desire not merely a collegiate, but a professional education, and for whom adequate facilities as to each are furnished at the same institution.

It does not meet the case of the student who is looking towards a business life, nor of one anticipating a life of leisure. These men should go out into the world with their baccalaureate degree, at one and twenty. They need just the lessons which the world has ready for them. They ought not to be academized away from fellowship with those among whom they will spend their lives.

Nor does it meet the proper demands of society, if the professional man is not launched in his profession before he is twenty-five. A quarter of a century is too long for the ordinary man to give to learning how to pass the next quarter of it. Time is a dear commodity, nor is his the only loss. The liberally

educated are so few that the world needs all it can get of them.

The professional school now gives to the professional student all that he need seek of university training. Its course of late years has been both broadened and lengthened.

In the law schools, topics like the history of institutions, comparative jurisprudence, international law, public and private, and Roman law, to which formerly slight, if any, attention were paid, are now taught with care. The classroom is used for free discussions, in which teacher and student both take part. In the libraries, books of legal philosophy have as much a place as the sets of judicial reports. Under the influence of the American Bar Association, the term of study is rapidly becoming one of three years. In the medical schools, the advance of science seems to have required a still further extension of the course, and four years is not infrequently required.¹ Biology, physiology, microscopy, and chemistry are leading branches of instruction. Laboratory work and the method of the "Seminar" have been introduced. In the schools of divinity, historical criticism has assumed a position of new dignity. Sociology is to be studied. The human mind is to be measured by laws of biology, quite as much as by those of metaphysics. In the technical schools, the strides of invention and scientific discovery have opened new doors in every direction. It is safe to say that never again can a professional education be acquired to advantage in or out of the United States in less than three years time.

Such an education ought, if possible, to be preceded by a collegiate education. It cannot be, in the majority of cases, if for a collegiate education more than three years is demanded.

President Harper has sought to relieve the strain at the Uni-

(1) After January, 1902, no one can be licensed to practice medicine in the State of New York, who has not completed a four years course in medicine. A year or two as a hospital *interne* generally follows graduation from the medical school, and a thoroughly trained physician now seldom commences practice on his own account until he is twenty-seven or twenty-eight years old. *Report of the United States Commissioner of Education for 1898-9*, ii., 1681.

versity of Chicago by reducing the minimum to considerably less than this. His plan was announced in his report for 1898-9. "It is evident," he there observed, "that many students continue work in the Junior and Senior years of college life whose best interests would have been served by withdrawal from college. Many continue to the end, not from choice, but rather from compulsion, because of the disgrace which may attend an unfinished course. If it were regarded as respectable to stop at the close of the Sophomore year, many would avail themselves of the opportunity." ' At Chicago, therefore, the degree or title of Associate is given to those completing Sophomore year in ordinary course. They are then free to leave the university to enter upon active life, or to connect themselves, if they desire, with a professional school, there or elsewhere.

This diploma of "Associate" corresponds fairly well to the "Zeugnis" of the German gymnasium. Like that, it may serve as a passport to the university in any of its departments. But granted as this is, at the end of two years, it is evident that those who accept it and depart must forego a great part of the good of a college education. The rubbing down of rough points; the settling down, or, as it may be, the rising to one's true level, which come from the attrition of student life, and its frank, unbiased judgments; the intimacies cemented by common tastes; the little world of close association;—these can be but half gained, half known.

Nothing is quickly learned. Acquisition is one thing, and assimilation another. "Des Menschen Engel ist die Zeit." Our ancestors were right in taking four years to carry their sons through Harvard and Yale, although they themselves had learned the same things in three, at Oxford or Cambridge. Harvard and Yale began by teaching their Freshmen what the English boy then learned at school. It is the encroachment of the American school on this first year of college work which has led to the

(1) *Report of the United States Commissioner of Education for 1898-9*, ii., 156.

encroachment of the American college, at the other end of its course, upon the university.

For the man who must have a professional education, the university counts for more than the college. The days of picking up such an education from unskilled teachers are past. The number will constantly decrease of lawyers trained in law offices; physicians learning their art from attending a country doctor upon his rounds; theological students reading in a pastor's study; civil engineers whose knowledge of surveying was gained as chainmen; mechanics or electricians who worked their way through the shop to science. We have found that science is the true gateway to the shop.

The university courses cannot be shortened. There is too much in each science that must be learned. The struggle for existence is too severe to admit of entering the race without the full equipment for success. It is, then, the period of preliminary education that must be reduced. The school must yield or the college; perhaps both. They now between them teach what is not necessary for those taking the next step forward; and it is that step forward which, according as the foot is firmly planted, secures, or forever forfeits, success in life.

The American people have been patient, thus far, under the strain put upon them by the conversion of our colleges into half-baked universities. They have been too patient. A vigorous protest, made thirty or forty years ago, would have set our college presidents to thinking. They had taken the English university system as their model. For two centuries they had conformed to it fairly well. Now they were seeking to add to it the German university system. Each, standing by itself, had its merits. Would they gain or lose by combination? and would not such a combination force back on the preparatory school a kind of work which the college had done, and could always do, better? These were questions which were not carefully considered by the outgoing generation. They must be carefully considered by and for the incoming generation. It is not

yet too late to retrace our steps, but it soon will be too late.

The reforms proposed by President Eliot and President Harper are in the nature of compromises. The fundamental question is whether our colleges shall continue to offer instruction in such subjects as in other countries, and in former times in this country, have been thought to belong only to the university. If students are not to be required to take this instruction,—that is, to elect from such subjects,—it would next become a matter for consideration whether these courses should be offered at all, except in universities. To maintain them for the handful who would remain after the graduation of their class, would be beyond the means of most colleges, if not beyond the functions of all.

The opposition to shortening the time required for a college education is largely supported by public sentiment among the students. Theirs is a pleasant life. Their circumstances and surroundings are all favorable to their improvement. They feel, and exult in feeling, a steady growth in mental power. They have formed friendships which parting may chill or disturb. They are accustomed to respect the opinions of their instructors, and the collegiate system is the expression of those opinions.

Here, indeed, is the chief obstacle in any reform. It is natural and inevitable that an unfriendly attitude towards a reversion to the original policy of the American college should be taken by many of the members of the college faculties.¹ Their importance would be diminished if their opportunities for imparting the higher learning were to be abridged. It would also tend to reduce their numbers by cutting off those least capable of giving good elementary instruction. To dock a quarter of the college course is to render unnecessary the services of a quarter of the college faculty.

These influences will delay, but can hardly defeat, the restora-

(1) See a discussion of this point in an address on the *Readjustment of the Collegiate to the Professional Course*, published in the *Report of the American Bar Association* for 1898, p. 597.

tion to a large and most important class of our young men of that year of their active manhood which our present collegiate system has virtually taken from them.

Towards the close of the eighteenth century, the American Philosophical Society offered a prize for "an essay on the best system of liberal education adapted to the genius of the government of the United States." A treatise by a Maryland school-master, Samuel Knox, was the result, which was published in 1799.¹ He would have had each State maintain a college with a three years course, and the United States a university, with one of the same length, from which a diligent student might be graduated, at twenty-one, with the degree of Master of Arts.

The prize was divided between Knox and another competitor; and Jefferson, in mapping out the University of Virginia, appears to have profited by some of the suggestions thus made. If the main proposition of a reduction of the term of college study had then received the unqualified endorsement of the Philosophical Society, it is not impossible that the change of policy advocated in this article might have come a century earlier.

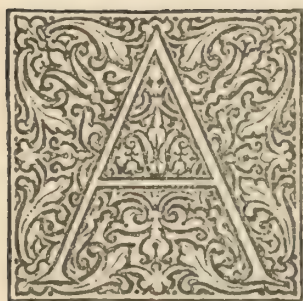
(1) *Report of United States Commissioner of Education* for 1898-9, i., 577.



GERMAN CRITICISM

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(*Concluded from May number.*)



AND now the time was ripe for Germany. On the men who created for us the critical method Vico has had no influence,—on Winckelmann, on Lessing, on Herder. They have all racked their brains over the question which he, in his prophetic way, had already answered. On the other hand, after them, the principle, which in Italy the divination of genius had reached only once, and in a single isolated example, stood firmly established and accessible to all.

Johann Joachim Winckelmann (1717–1768) is the founder of the German conception of history. The poor cobbler's son from the little town of Stendal in the barren Mark, was dazzled, hypnotized, by the splendor of the ancient world that shone on him at first only from its writings. An immense longing drove the poverty-stricken school-teacher, the indefatigably industrious custodian of a private library, to Rome. What happened there can best be told in the words of Ulrich von Wilamowitz-Möhlendorf:—

“To try to know the divine charm of Greek beauty from books was, perhaps, in any case, a superhuman task; it was necessary to see the works of sculpture with the bodily eye, and this must be united with travel on the ancient soil. Poetry was able only to wake longing for the actual sight of those divine

forms and for the South, and to make it an irresistible power. This Homer and Plato did for Winckelmann. When he finally stood on the soil of the Eternal City, he proceeded to develop his doctrine of the lofty beauty of the real world of Greek art; and he who knew how to learn of him, could grasp in theoretic form the common element in all the Hellenic arts. The smallest relief on a grave of the Sacred Way, the most hasty sketch on a vase of the fifth century, the most careless canto from the Iliad and Odyssey, and the dullest comic fragment in Athenaeus, has a gleam of this rare beauty. Winckelmann taught men to see this; but he taught them, also, to understand it by putting before them the evolution of art, by making not the finished object, but its growth, the subject of investigation. For the first time, the laws of organic life were applied to a realism of creative activity. What the task of history is, and that the comprehension of any object must be an historical one,—that Winckelmann fixed once for all."

In this, then, lay his greatness. Winckelmann discovered the idea of *style*, which had hitherto been known, indeed, in its naïve application, but not with conscious clearness. Even Vico had distinguished only three stages. Winckelmann took up seriously the idea of organic life. For style is that which shows a definite, historic, collective personality, people or school, age or generation, with inner necessity in all the manifestations of its life; and inner necessity is found only where there is organic life. "Beside the critic Lessing," says Erich Schmidt, "place Winckelmann, the seer, intoxicated with beauty, who has fructified the history of literature, as well as that of the plastic art, by the watchword of Style, which shows, amid the confusion of details, connection, school, development."

What is the meaning of this magic word "style"? in what does its marvel consist?

Ancient æsthetics talked of "style" and "styles." Aristotle and Cicero knew that a lofty and a lowly style could be distinguished; that one style was adapted to tragedy, another to comedy, a third to denunciation, as, for instance, to a plea

before a court. But this was always understood to mean a mode of expression belonging to a definite species, as it were, native to it. It had as yet dawned on no one that style was the organic expression of individual quality, and that it sprang as necessarily from definite individual or collective personalities as the rose, and the rose only, from the rose-bush. Even Buffon's famous saying, "*Le style c'est l'homme*," has a wholly different meaning. In this lies the theoretical significance of the concept "style." To it corresponds its practical worth.

The demand that each individual part of the great whole be put before us, is justified only by the fact that there are certain powerful forces diffused through this same whole. Were this not the case, the consideration of the immediate environment of the artist or the work of art would be enough: the friends, patrons, teachers who influenced the artist, the conditions under which the work arose. But this is not enough. Certain great forces are present, sometimes evident, oftener invisible, which influence *all* the artists or *all* the works of an epoch. These find their expression in style. Sometimes we can state clearly how they find expression; for instance, Winckelmann used the phrase,—valid for a certain period of ancient art,—“noble simplicity and calm grandeur.” More often we can attain only the feeling, not the definite formula, of that in which the stylistic character consists, just as certain persons always make on us the same impression, which, nevertheless, we cannot formulate.

Style, then, is the intermediary between our view of the whole and of the single case. It enables us to realize from the individual phenomenon the character of the whole epoch to which that phenomenon belongs; it calls up in our memories before each separate work kindred phenomena and the whole art of the time. In this lies the immense importance of the conception for art and for the history of literature. It has been developed, analyzed, and equipped with a mass of detailed proofs, chiefly by Germans, like the æsthetic critic F. T. Vischer and the architect Semper. But among all nations it has become the indispensable tool of all historical criticism. Only since Winck-

elmann formulated and proclaimed it, has a real history of art or literature been possible, for only since then have we been able to realize clearly and to expound the general character of an epoch in the single work, and the share of the single work in the general character. "Everything," says Goethe, "has universality." This universality which works of art possess, constitutes their style.

But in spite of this great discovery, much was still to be done. After Winckelmann, there was still room for Lessing and for Herder. Both are pupils and admirers, both, too, in part opponents, of the founder of the history of art. The younger men surrendered themselves to him more unconditionally, Goethe above all; and Friedrich Schlegel tried to apply the principles of Winckelmann's "*Geschichte der bildenden Kunst*" to the history of Greek literature.

Lessing is the last and greatest flower which Humanism has produced in Germany and in the world; in his life and in his thought astonishingly near akin to the men of the literary and learned, not the artistic or political, Renaissance, and yet so thoroughly akin and comprehensible to us moderns. The problem from which all modern criticism has sprung, on which Vico and Winckelmann had trained themselves, became for Lessing, in turn, a personal and torturing dilemma. The soul of the faithful and absolute admirer of classic art—this is the one point on which Lessing remained orthodox his life long—received from Shakespeare's dramas an unlooked-for impression. In view of Lessing's own words, there has been much dispute as to whether the great critic can be called a poet. The question is, to my mind, almost ludicrous in the case of a man who has created figures like the sergeant in "*Minna von Barnhelm*" and the Dervish in "*Nathan*,"—especially if we compare the absolute poetic truth to life of these figures with the hollowness of their immediate predecessors on the German stage. The question seems to me wholly idle, when I recall the wealth of metaphors in Lessing's prose, metaphors conceived and carried out in so poetic a way. But both these arguments are less strong than a third, that only a

genuine poet could have discovered Shakespeare. And Lessing is his real re-discoverer, in spite of all that Garrick in England and Wieland and Eschenburg in Germany did for the author of "Hamlet." The real discoverer of Shakespeare is Lessing; and what a deed it was in an age which was completely ruled by the dogma of the incomparability of ancient art and by the belief in the excellence of its French imitators!

Lessing felt absolutely at first hand the sovereign power of the English poet. "After the 'Oedipus' of Sophocles," he says in his famous seventeenth "Literaturbrief," "no piece in the world can have greater power over our passions than 'Othello,' than 'King Lear,' than 'Hamlet.' Has Corneille a single tragedy that has moved you even half so much as the 'Zaïre' of Voltaire? and the 'Zaïre' of Voltaire,—how far is it below the 'Moor of Venice,' whose feeble copy it is!"

Lessing, then, had to take up afresh the fundamental problem of how we can be just both to ancient and to modern national art. And inasmuch as he was of an eminently critical nature, a born philologist and a man of extraordinary range of knowledge and of vision, he deliberately took, in answering this question, the path on which Vico (alone, enthusiastic, often uncritical and fantastic) had gone before him,—the path of the comparative method. And so he has, as Erich Schmidt justly remarks, built up an inductive system of æsthetics, that is, one that starts from the exact knowledge of details, an inductive system in spite of all the deductions (that is, inferences from general principles) which it contains; and he has thus pointed out the road which Wilhelm Scherer one hundred and fifty years later followed out with daring boldness along its large lines, whereas Karl Lachmann and Heinrich Steinthal, Gustav Freytag and Karl Hettner, have applied inductive æsthetics only to single fields.

Lessing's conception of art is closely related to his philosophy of history, or better, it forms one subdivision of the latter. Lessing's general conception of the development of the capacities of the human race, is set forth in the last and ripest work of his rich life, in that "Erziehung des Menschengeschlechts," which

remains perhaps the most beautiful and most profound of all the attempts to answer the question as to the path and the goal of human history. He decisively opposes here all the attempts of the orthodox faithful and of the radical Rationalists to reduce the whole evolution of mankind to a single straight line. "Go thine imperceptible pace, Eternal Providence! Let us not doubt of thee, even though thy steps seem to me to turn backward. It is not true that the straight line is always the shortest. Thou hast so much to carry with thee on thine eternal road, so many steps aside to take!"

In the same fashion, the great preacher of tolerance explains the zigzag movements of evolution in other spheres as well. He is convinced, to a degree that we should not nowadays admit, that starting point and goal are the same. For him, mankind is always and everywhere essentially one, and therefore human effort has, at all times, the same end in view,—in investigation and in art. Hence Aristotle has defined the task of tragedy, not only for the Attic stage, but for all time. It is true that Lessing does not bow blindly to his great authority. "I could dismiss the authority of Aristotle, if I were only able to dismiss his arguments." But if we admit that the modern man is at bottom identical with the Athenian in the days of Euripides, we must accept as valid for the former the psychological postulates which Aristotle lays down for the latter. And so Lessing stops with Aristotle. But there are many ways of meeting his definition of tragedy, and the direct way is not always the shortest. "Even according to the standards of the ancients, Shakespeare is a far greater poet than Corneille, although the latter knew the ancients very well, and the former almost not at all. Corneille comes nearer to them in mechanical arrangements, Shakespeare nearer in essentials. The Englishman attains his goal almost always, however strange and individual a way he may choose, while the Frenchman attains it almost never, although he treads the smooth path of the ancients."

Given, then, these three postulates: the same starting point, the same goal, different routes, and the necessity arises of itself of

studying and comparing the different routes. This is precisely the real content of all the critical, æsthetic, and historical work of Lessing, from his youthful attempt at a comparative history of the stage, through the "Laocoön" and the "Dramaturgie," down to his noteworthy criticism of Goethe's "Werther." Thus he discusses, in the "Laocoön," the ways and means which painting and poetry must employ to attain the end common to all the arts; thus he compares, as we have seen, the paths which Sophocles, Corneille, and Shakespeare took to the same goal.

But Lessing did not stop with this. He is not satisfied with showing how the individual seeks to accomplish his task. So far, he has been the philologist, the historian; but now comes the critic, and asks how near we are to the goal. This is, of course, an ancient habit of criticism; the novelty lay in Lessing's method. Down to his time, one method of procedure, and one only, had almost everywhere been in vogue:—an accepted model was taken; with it was compared the work that was to be judged, and the agreements and divergences noted. Even when a critic went farther, he scarcely ever ventured to stray from the printed book. He compared what was written here with what was written there. Lessing marked an epoch in criticism in that he calls the work to life before he judges it. That he has the courage of subjective judgment is much, but what he does to make his verdict nevertheless objective, is far more. The printed book, read slowly and leisurely, taken up in various moods, rouses very different impressions in its various readers. If we wish to be just, we must see the work of art under discussion in the most favorable light. A drama is intended to be seen, not read; the group of the Laocoön must stand before us, not in a feeble picture, but actually grasped in all its lines. This makes our verdict, at least in some degree, objective; at any rate, we then pass judgment on the actual, living work, and not merely on our notion of it, which may be wholly wrong.

Thus Lessing became the first impressionist critic in the true sense of the phrase; the German and French criticism of the "Correspondance littéraire" of Diderot and of Grimm timidly

followed ; and, very much later, the modern French reviewers, with Lemaître at their head, have taken up this tradition. For "impressionist criticism" does not consist in the reviewer's simply giving his impression of the moment, but in his turning from the pale half-impression of the written book to the full, living one of the work as the artist meant it to be, and bearing witness to this. This is what Lessing has always done ; and in his power to endow dramas, paintings, novels, with vivid life, making the failures seem all the more contemptible, is revealed afresh the poetic capacity of the man for whom Friedrich Schlegel has so happily coined the phrase "productive criticism."

It seems, at first glance, strange that the scholar who was tied, as it seemed, to the text, who saw in Italy (so unlike Goethe) only the libraries, should base his final verdict after all only on the sense-impression of the work of art as it stood before his mental vision ; it seems surprising that the man who professed methodical comparison should after all be an impressionist. And yet it is so ; and here lies the strongest root of his unwavering influence. When he is classifying, even, he still uses abstractions and formulas much too much ; his treatises on the Fable, on the Epigram, are still disfigured by the arbitrariness of the epoch, the same arbitrariness with which Linné (1707-1778) classified plants, and Christian Wolff (1679-1754) ideas. The spirit of rationalistic despotism which rules in all his classifications, is an honest effort after truth and order, but shows a complete lack of comprehension for individuality and historic truth.

But when Lessing passes from classification to pronouncing judgment, then he is the son of a new time, then we understand how Friedrich Schlegel, the intellectual head of the Romanticists, could be enthusiastic over the friend of Nicolai. For the immediate experience of the impression of a work of art, this main tenet of Romantic doctrine, was first established in its full authority by Lessing. Through the personal experience of a powerful impression he became the herald of Shakespeare ; where this experience was lacking, he dropped the best written books sternly, and was unable to praise "Werther,"

as he once did the much inferior "Agathon" of Wieland.

If Lessing in his "Dramaturgie" opposes sharply, and often unjustly, the Paris stage, it is because the old religious antitheses have met face to face in the sphere of æsthetics. The Roman Catholic clings to tradition, the German Protestant demands that a creed become a personal experience. It is evident that the French public, too, pronounces judgment in accordance with its impressions, that Voltaire and the old Fritz, when they reject Shakespeare, are also impressionists. But this impression is the very thing in which tradition plays its part. No tradition influenced Lessing when "Romeo and Juliet" and "Hamlet" became experiences for him. And this is after all the last and greatest quality in the critic,—the capacity of drawing his verdict wholly from the fresh impression of the work of art upon his soul.

We grant, of course, that this art of giving a thing independent life, of unprejudiced appreciation and enjoyment, was in Lessing's case limited to certain classes of objects. In one thing he remained always the son of his rationalistic age,—a work of art without a definite and, if possible, known creator was to him an uncanny thing; just as for the boldest sceptic of that period, even for a Voltaire, the conception of a world without a creating deity had something horrible in it. Hence Lessing passes popular poetry by with little interest; popular songs, to which he now and then turned his attention, were for him only curiosities. But it was in popular poetry that, as Vico had suspected, the key to the great riddle was to be found. As long as critics, in common with Lessing, compared only the conscious art of highly developed periods, they remained outside of the great complex in which all human art is embraced. To discover this again, and to hold enthusiastically to it, was reserved for Herder.

Johann Gottfried Herder, whom a strange accident made the near countryman and personal scholar of the stern and cold founder of critical philosophy, (though in his old age he became the most violent personal opponent of this master,) Herder is

intellectually more akin to Vico than to Lessing or Winckelmann. This passionate nature furnished Goethe with traits for the drawing of his "Faust." An insatiable longing for great emotions and great thoughts was native to him even as a dreamy boy, and on his death-bed the old man demanded of the bystanders a great thought to which he could cling. Knowledge of detail, even though it were as deep as that of Kant, could not appease this Titanic spirit. He wanted the whole; he wanted to clasp all animate creation with intellectual arms, to see it with the intellectual eye. This longing determined also his taste in art. It is true that the high reverence for the formal severity of ancient art was born and bred in him too; but against the exclusive orthodoxy with which Winckelmann, and in part even Lessing, took the field for the unique rank of the Greeks, his nature rebelled, as if a fragment—the most beautiful though it might be—were being cruelly cut out of the vast cosmos of the beautiful. It was for him a necessity to keep before him at every moment the totality of life. Giordano Bruno had been the first to boldly proclaim the plurality of worlds. Fontenelle had played with charming grace with the thought. For Herder, it became the foundation of his conception of the world. He needed room for his conceptions. There is something creative in his ideas; he needs chaos in order to shape worlds. Hence for him our earth is only "a star among stars," which is the kernel of his philosophy of history as set forth in the "*Ideen zu einer Philosophie der Geschichte der Menschheit*"; hence, too, the human race is for him only one of the many forms of organic life on the earth, one whose characteristics are determined by its element, its "climate," like those of the fish.

Therefore, even the Greeks are for him only a people among peoples,—in many ways the noblest, as the human race conceives the flower of organic life, but still only a single case. Therefore ancient art is for him only a single case, and the problem of being just both to it and to a national art vanishes, inasmuch as a difference of principle between the former and the latter no longer exists.

With Herder, just as with Lessing, personal experience of the impression made by art has promoted growth in knowledge. But it is significant that for him there stood alongside of the two great types of Lessing, the Greeks and Shakespeare, a third,—the Bible.

Just as with Lessing, it is in Herder an astonishing proof of the aptness of his genius for poetic appreciation that he received so deep an impression from the poetry of the ancient Hebrews. The weight of content, which had prescribed the fate of peoples and times, was here so overwhelming that the centuries had never reached the point of noting the form. In the first decades of Christianity, a Greek rhetorician pointed out the poetic power of the Mosaic story of creation as an example of the sublime in poetry; but since that time the very reverence of Christians had hindered such a way of looking at either the Old or the New Testament. Through the whole Middle Ages thought had, as Goethe said, "busied itself more about the Bible than with the Bible"; the Bible was the Ark of the Covenant in which lay the sacred documents—who troubled himself about the color and carving of the wood? A certain lowering of the religious temperature was necessary to make room for that admiration which has in turn since Chateaubriand been made use of for religious propaganda. In Herder's eyes, the Bible was above all an æsthetic revelation. Not because, but in spite of the fact that he was a clergyman, he felt in reading the ancient Hebrew prophets, the Mosaic narrative of the creation, the epistles of the Apostle Paul, a tragic thrill, which, in generations of theologians, routine occupation with the Bible had not allowed to arise. It was as if on the eyes of a young herdsman on the lonely Alps the awful splendor of the glaciers should suddenly dawn, which he and his comrades had noted hitherto only as topographical landmarks. Just here, in the wonderful narrative of the beginning of existence, did Herder feel those great sensations for which his soul longed. Here a fruitful chaos lay before him, out of which a world was just rising, not, as with Sophocles, a smoothly

rounded island of the gods, a sacred Delos in a stormy sea.

The interval was still wider than that between Sophocles and Shakespeare, which Lessing's penetrating glance had bridged. The contrast between Hebrew and Greek poetry was a fundamental one,—so much so that all attempt to explain it from the individuality of single personalities was idle. In Sophocles and Shakespeare, nations of wholly different character faced one another and reflected themselves in the individual poet. Thus, Herder arrived at the fruitful idea of racial individuality, which after him his great pupil, Wilhelm von Humboldt, carried out; and thus he succeeded in coining the necessary name for the conception which had long hovered before him in vague outline,—popular poetry (*Volkspoesie*).

How far the contrast between popular poetry and the poetry of culture can be justified—a contrast which Herder's successors, as for instance Bürger, the poet of the “Lenore,” and still more the Romanticists, pushed to its extreme—is nowadays often doubted. It is not so much the question whether this or that poem should be classed with popular poetry or with that of culture; the main question is of recognizing a popular poetry at all. It is a question of works of individual genius, no longer seeming meteorites fallen from the sky, but highly organized flowers of a mighty tree, which has its roots in common life itself. Only with this view is the relation of the individual work to the whole intellectual atmosphere out of which it has sprung, made clear; only then does the comparative criticism of the personalities and the works of artists get down to the roots.

The immediate result of this new knowledge was, that a throng of hitherto unnoticed beauties were revealed to the longing eye. That nation of inherited wisdom and tradition, England, had been the first to begin to collect its popular songs, and Bishop Percy's “Reliques of Ancient English Poetry” has influenced Herder's epoch-making collection of folk-songs of all ages and nations, the “*Stimmen der Völker in Liedern*.” But it was novel to have this unpretentious poetry placed beside the most famous works of celebrated poets as essentially akin and entitled to the same recog-

nition. Here the older friend of Herder, Hamann, a mystic enthusiast and ecstatic seer, had shown his disciple the way by the assertion, "Poetry is the mother-tongue of the human race," and by his hostility to the Rationalistic cult of the intellect, which drove him to an exaggerated admiration of the uncultivated and unspoiled. A still stronger ally was the powerful influence of the paradoxical opponent of all progress in human history, Rousseau. Nevertheless, the great and consistent development of these views must be put down to Herder's credit. In basing all the poetry of culture on the popular poetry of the unlettered, in accepting for Sophocles and Cicero the same foundations and conditions as for Ossian or German folk-song, Herder became the prophet of the "age of genius," the ancestor of Romanticism, and the pioneer of all modern criticism, as far as history and æsthetics are concerned.

And yet, this fundamental conception was not all that this fertile mind produced. From his central idea he developed a concept that became as important, as indispensable, as Winckelmann's "style," the concept of the "type."

Here, too, much that had long been surmised and often assumed as true in practice, was waiting for the individual genius to make it clearly perceptible. The idea of the type had, as we have already seen, been suggested very distinctly in Vico's conception of racial history; but even here only with limited, almost accidental application. The Hercules' club with which the Italian had dashed in pieces national, in favor of chronological, differences, turned in the hand of the East Prussian into an ingenious tool for the spiritual conquest of the world.

The idea of style rests, as we have seen, on the recognition of the fact that certain great forces are constantly at work, and appear in every individual artist, and in every work of art in their realm. We might stop with this, if we were looking at the single nation or the single art by itself. But as soon as the eye is turned on the comparison of individual nations with one another, we are at once struck (as Vico shows) by another fact,—the resemblance that exists between the styles of different nations at a given time.

The greatest and most decisive example is popular poetry itself. At an early stage of development Hebrews, Greeks, Germans, and Celts have a poetry which has essential traits common to them all. This was, to use Goethe's word, the "*aperçu*," the creative discovery. Its working out was reserved for Jacob Grimm, Uhland, and Müllenhoff.

We have then—and this is in itself a fact of immense importance—typical forms of development in the human race and in poetry. But the idea of the type is capable of further and more individual applications. Herder makes use of it everywhere, with ever fresh delight and almost always happily. He usually distinguishes, after the example of the three ages adopted by Vico as model, three types, following one another in time. Thus, he arranges the doctrines of the Old and New Testament, each in three great sequences; thus his pupil Goethe distinguished three forms of the relation of the artist to nature: simple imitation, style, manner; thus, Hegel and his school have carried out the idea in their three stages of evolution in even exaggerated form.

Herder himself used these two ideas, which he gave to criticism, to establish new disciplines with their aid. The man who first grasped the conception of a universal literature in its full extent (the phrase only comes from Goethe) was the founder of the comparative history of literature, made contributions to the comparative history of religion, and put the history of civilization on a new basis by his famous work, the "*Ideen*." As a critic in the narrower sense, on the other hand, this brilliant seer has not been happy. All he has done has been to deepen the knowledge of Shakespeare and of popular poetry, and to perform inestimable service to Goethe, when a developing youth. In his many detailed criticisms he has often been wrong, as he has, too, in his general criticisms of the achievements of Frederick the Great, and of Goethe, Schiller, and Kant. He let himself be guided in his judgments much more than Lessing by theory; he was too little of a poet to enjoy a work of art in all its fullness of life. Lessing was for years his model, even when he opposed him; but Herder's critical activity is utterly different from that

of Lessing. He helped to introduce a wholly new period of literature; as judge of details he does not stand comparison with Lessing.

For these reasons, Herder was not Lessing's successor in the wielding of the critical sceptre. The throne was vacant for a while, and then the critical superiority, but by no means the critical supremacy, passed to two pupils of Herder,—to Schiller and Wilhelm von Humboldt.

Goethe, Herder's greatest scholar, was also successful as a critic wherever he could carry out his master's suggestions and views. He learned from Herder what the latter taught rather than practiced,—to train the senses in exhaustive comprehension and enjoyment of a work of art. The eye must, as it were, feel tactually the beauty of sculpture, the ear must catch the ring of the verse, and not content itself with the typographical silhouette. And he learned from Herder, too, to prize popular art, to appreciate the beauty of form in the Bible, and to unite without hesitation the worship of Shakespeare and of the Greeks. He got from Herder, also, the doctrine of types, which assumes such an unexpected and pregnant shape in Goethe's scientific works. For all this Goethe has accomplished by his criticism almost as little as Herder, although in his case the immense authority of the famous poet, the most celebrated artist of his time, reinforced the weight of his verdicts. Even his contemporaries wondered that Goethe's criticisms had so little result. He had almost the same fate as Herder. When he was young and little known, he wrote brilliant reviews, and became influential as a critic; then he laid aside the task for a long time, and when he was old and famous took it up again, but only now and then did a review (like that on Arnim and Brentano's "*Wunderhorn*") have any effect. And yet Goethe has enriched and elevated æsthetic criticism. Above all, he has made it scientific without making it false to art. The conception of a great, living whole was here, too, always before him, and literature was for him only a fragment of the world's expansion of its past life. As in his "*Geschichte der Farbenlehre*," he referred the brilliant colors of

Titian's art to the instinctive joy of the child and of the savage in colors, in their mixing and laying on, in tatooing; so also the lofty, the divine art of saying what we feel, goes back for him to the stammering of the babe. As he has taught and practiced in the notes to the "*Westöstlicher Divan*" the study of poetic characteristics from the point of view of the history of civilization, and in that incomparable work, "*Dichtung und Wahrheit*," from the point of view of literary history; so every review of Goethe's is an attempt to put the work of art and its creator where they belong, to assign them their proper places in the organic complex which is made up of the artists of the same class or epoch. Still, as has been said, it cannot be maintained that Goethe has had any perceptible influence on the development of criticism. Lessing educated the whole world, Herder the poets, Schiller and Humboldt the critics; but of Goethe was peculiarly true what he said of himself, that he was a liberator, but no teacher.

The two who shared Herder's critical legacy between them were critics in the highest sense. Wilhelm von Humboldt (1767-1835) based his criticism chiefly on the new idea of national individuality, but also retained the old idea of specific character. He is a lesser Aristotle, in the good and in the less good sense, in the way in which he seeks to deduce the laws of epic poetry in general from a single, though perfect, work,—Goethe's "*Hermann und Dorothea*"; and is at the same time trained by a thorough knowledge of ancient poetry. He was the model for the speculative æsthetics of the subsequent time down to Spielhagen, a critic born of practice, and yet wholly under the influence of theory. Schiller made peculiarly his own the fruitful idea of the style. His most famous critical achievement, the treatise "*Ueber naive und sentimentalische Dichtkunst*" (1795), is thoroughly Herder's in the way in which certain great types are traced everywhere in the literature of the world. Nevertheless, Wilhelm von Humboldt could write him, that this work "opens for criticism a wholly new and hitherto untrodden path"; that it "establishes laws, where hitherto criticism has

been based solely on subjective feeling." This new method is, to be sure, dubious in this,—that Schiller pronounces on each type a definite verdict. This was precisely what has made even otherwise valuable reviews, as the famous one on Bürger, so dangerous; the type was critical instead of the individual. To the general comprehension of literary history Schiller has contributed much. This method suggested the admirable fashion in which A. W. Schlegel in his lectures describes the type of the romance or the idyl. On his procedure is based that first great attempt at a pragmatic history of literature, the "*Geschichte der deutschen Nationallitteratur*" by Gervinus. But although Schiller's greater knowledge of art saved him from blunders of the sort made by Herder, the danger still remained, that along this road the last and strongest pillar of evolution in art, personality, might finally be wholly lost, or be included only as one item in a predetermined system of styles and types.

This danger was met by the Romanticists. By adding to the slow erection of ages the coping-stone and making the old conception of individuality at last fruitful for historical and critical learning,—as Herder had done with the type,—they completed the work of centuries. When Mme. de Staël—and more recently, and with great emphasis, Walzel—called the Schlegel brothers the fathers of German, nay, of modern criticism, this seems to me unjust both to Lessing and to Herder and to Winckelmann. What is true is that the task, which began when that fundamental problem forced itself on the German mind, was completed by the Romanticists. Since then, the method of æsthetic criticism has not been materially improved.

The whole Romantic movement has its root in æsthetic enjoyment. The chief thing for it is the moment of artistic fruition, rather than the process which led to it. Hence the Romanticists are born critics,—impressionist critics, as was Lessing. Thus A. W. Schlegel (1767-1845) says, "Among all the tasks of criticism, none is more difficult, and none more profitable, than an apt characterization of a great masterpiece." Of course! For this characterization presupposes that the critic has put himself in

closest touch with the spirit of the work, and experiences the whole ecstasy of its coming into being. "The most honorable task of criticism," says, again, the elder Schlegel, "is to grasp and follow out, clearly, perfectly, with sharp definitions, the great meaning which a creative genius has embodied in his works, a meaning which is often hid in their innermost recesses, and thus to lift to the plane of the true point of view less independent though appreciative observers." For the critic can give the "weaker brethren" the full enjoyment of a work of art only by sharing with them his own previously acquired appreciation of it. For this reason, Samuel Johnson, the most famous English critic of the old school, is for A. W. Schlegel, the awful example of all that a critic ought not to be, just because by his forward and inconsiderate judgments he discourages the sinking of the critic's self into the work of the author. Friedrich Schlegel (1772-1829) defines the chief task of criticism more briefly, as the comprehending, the explaining, and the setting forth the history of each particular artist; for this history consists essentially in the great moments of inspiration in his life.

It is from characterization, then, that the Schlegel brothers, the leaders of the Romantic School, start, and "characterizations in the modern sense," says Walzel, "the Schlegels have been the first in Germany to furnish." But what are characterizations in the modern sense? They are presentations which, without harming at all the context, bring out individual quality sharply. They are criticisms, which, without doing injustice to the universal, emphasize strongly the specific.

The means of placing the work and the artist where they belong, are now all at hand: command of the whole environment, examination of the style, comparison of the means, impressionist criticism on the basis of an intellectual reconstruction, recognition of the type for the individual artist and nation. These data may all be at hand, and yet we may do wrong to the individual. For at the same point in the cosmos of mutual support and limitation, may be inserted, here a medallion in low, there one in high, relief. It is characterization that must furnish

the proper relief. What makes this stone, which fits its place so exactly, more than a stone? what makes it a living whole, existent once for all, a microcosm?

The reason lies, as the Romanticists were never tired of insisting, in the fact that every genuine personality and every true work of art has "its own centre, its own soul, as it were, from which the controlling spirit penetrates all parts, even the most remote," (the words are Tieck's). This "essential point of view, on which all depends," the critic must find; to be sure of it he must, as Friedrich Schlegel insists, study the author in the whole range of his personality and development, instead of stopping with the book that happens to be lying before him. It is also a question of finding the point around which this particular nature has "crystallized," so and not otherwise; it is a question of determining the centre from which the specific organization of this particular personality radiates. When this has been found, it is a question of noting from it the various manifestations of the individual life. This furnishes the characterization. In other words, characterization is the presentation of an historically conditioned individuality, with the aid of all the resources of criticism and of a profound study of detail.

It is Goethe's ideas that we here see at work, and Goethe himself had them, in part from Herder, in part too from Leibnitz, —ideas of the inner independence of every animate being, of the necessity of each several "monad's" developing in accordance with its inner law and the conditions of its specific organization. They are ideas which have undergone a surprising revival in the cell theory of the modern scientist. But the energy which lent life to these views is the Romanticist's own. From this they passed to the strict distinction between works which were born of inner necessity and those which were patched together from without; and thus they arrived at the important conception of *the organic work of art*. So, too, they distinguished natures which have "a centre of their own" from those set in motion only by reflex habit. They exaggerated the difference, and were willing to let only the former pass as "men," while the latter, the

"Philistines," were for them only automata that mimicked life. For all this, this distinction first established, in its full rights, that idea of originality, which Lessing in his praise of Shakespeare had only had a glimpse of, which Hamann and Herder had worked for, and which "original genuises" had sought with exaggerated distaste for all authority. English critics—at their head the poet Young (1684-1765) and in his way too Laurence Sterne—have furthered the development of the idea, as well as the introduction of the word. But what, when all was said, an original nature was,—this the Romanticists first taught us to know by clear criteria.

The greatest critical achievement of the Romanticists was the complete appropriation of Shakespeare, the greatest original genius among poets. They divided the work among them. A. W. Schlegel furnished in his translation the most perfect example of the transference of a series of poetic creations from one language to another that the world has known; and Tieck offered an example of intellectual absorption in an author such as had never existed in the like degree. He was indefatigable in pointing out how great works must be enjoyed. "Every work of genuine poetry opens up an endless vista that rewards all our effort; and all the various views from various sides are simply so many rays which proceed from the same source, and spread further the glory of the artist, and hence are themselves art."

This fact, that an author belonging to a foreign nation became a German classic, that he stands as close to our thought and comprehension as even Schiller and Goethe,—this astonishing achievement was the highest triumph of poetic intelligence. It prepared the way for the full comprehension of the classics.

In his treatise on the "Rise of Hermeneutics" Dilthey regards a third number of the circle of older Romanticists as the man who perfected hermeneutics (that is, the art of interpreting documents) after the endless attempts of earlier times. And this same Schleiermacher (1768-1834) first exhibited, in his translation of Plato, the art which he established theoretically in its fully developed form in 1804.

Well might Tieck then (1803) cry: "There has surely never been an age which has showed such capacity for loving and appreciating all kinds of poetry, including those kinds which, at first glance, seem irreconcilable, and of being drawn aside by no preferences into partisanship and unappreciativeness. The ancients have never been so much read and translated as now, the intelligent admirer of Shakespeare is no longer rare, the Italian poets have their friends." What Lessing attained with his bold *salto mortale*, what Herder had wrought out of the depth of his knowledge, what was for their pupil Goethe the mere ordinary use of his surpassing powers of comprehension,—was from now on made possible and easy to the man of the people; namely, to appreciate equally classic and native art. How much a matter of course does that to-day seem, on which centuries, on which so many individuals of genius, have toiled—as commonplace as the telegraph, railroads, the electric light! How can we praise the discoverers better? They gave us what we could not conceivably live without to-day.

And what the Romanticists proper did for the comprehension of art and of the masterpieces of literature, a phalanx of great investigators nearly related to them did in other fields. F. A. Wolf (1759–1824) and Karl Lachmann (1793–1851) created the fundamental conception of what Lachmann's pupil and friend, Moritz Haupt, called "the natural history of the epic," and together with them Ludwig Uhland (1787–1862) laid the foundations of our knowledge of the nature of popular poetry. Niebuhr (1776–1831) took popular tradition as the basis of his epoch-making criticism of Roman history. For the most discrepant phenomena, the popes of the anti-reformation, the Servian revolution, or the Osman state,—Leopold von Ranke (1795–1886) found a place in the great complex of the phenomena of universal history. Every detail of language was felt and interpreted by Bopp, Diez, and above all by Jacob Grimm (1785–1863), in closest community with other phenomena. Countless names might still be mentioned,—among the greatest, those of Savigny, Carl Ritter, and Alexander von Humboldt. On these

interpreters in the grand style follow the great delineators of character: Theodor Mommsen (born 1817), who first used all, actually all, the tools of investigation to give a firm foundation to his great interpretation of national individuality; Renan (1823-1892), Taine (1828-1893), and he who united French elegance of form with German thoroughness of knowledge, Jacob Burckhardt (1818-1897). At the very end, the most noteworthy flower of this tree of intoxicating fragrance, there bloomed from the stern school of classical philology the founder of a new criticism of the world and of life, the representative of the unresting criticism of one who already lives in criticism, Friedrich Nietzsche (1844-1900).

What they all aimed at, these disciples and successors of the great critics, was the same, in spite of their different fields, in spite of their different natures. They aimed at *a wholly new kind of comprehension*, one essentially different from what had been previously understood by the word, as essentially different as is the insight into the anatomical structure of a plant which the microscope gives, from that which the eye had previously permitted. No! The difference is still greater. For it is a question of a qualitative, not merely a quantitative, progress in comprehension.

When Niebuhr judged the foundations of the earliest documents of Roman history by the analogy of historical folk-songs, such as lie before us in abundance from Germany, France, England, he underestimated, perhaps, the conscious effort of individual historians. When, on the other hand, Ranke in dealing with great historical events, such as the Reformation, lingers almost exclusively in the cabinets of princes and ministers, he was unjust to the great unconscious activity of the people. But with both there ruled equally the need of bringing a great historical problem nearer to the mass of other historical problems, of emphasizing the national element, where ordinarily only the individual receives attention, and *vice versa*. When Jacob Grimm indulged himself in the mystic phrase that "folk-song composed itself," he meant by this nothing more than to compare the mysterious process of its evolution with that of the grass of

the field, whose growth only the too clever man hears. When Mommsen, with almost deliberate irony, does violence to the awe felt in the presence of the Romans by using modern terminology and speaking of "batallions" and of "journalists," the underlying intention was nevertheless unmistakable of emphasizing the real identity of ancient and modern phenomena. And this was what was great and new. *For us there is no longer such a thing as comprehension apart from the universal context.* No isolated phenomenon exists any longer, or, if it exist, it can be explained from its isolation. Of old, if any one wanted to understand an ancient author, he "translated" him; one word was exchanged for another, and the substitutes thus called in might get on together as best they could. This is what Voss did with Homer. But Moritz Haupt preached to his scholars, "Don't translate," and his pupil Wilamowitz has drawn up an able introduction to the reproduction of classic writers which amounts to the same thing. Its idea is as follows:—that the "centre" of the foreign work must be found and reproduced, and around this the whole work must crystallize in a new form, as if new-born. In just this way we are to-day "translating" foreign works of plastic art or of history into terms of our intelligence. The "method of mutual illumination," as Scherer called it, is only one resource, but it is an indispensable one. It helps us to find the centre of phenomena that are foreign to us, and which lie wrapped in distant mist, by starting with those which we wholly comprehend. Napoleon helps us to understand not only Alexander the Great, but also Justinian and the origin of the Pandects, Charlemagne and the establishment of the new organization of the Empire. The living elements in all things and in all phenomena correspond; they strike sparks from one another, and thus arises a great system of universal comprehension.

Long ago has this new and great idea of comprehension passed from the philosophical sciences, where it was first practiced, to all other fields of investigation, and its most brilliant representative in the nineteenth century has been a scientist, not a German, but the great Englishman, Charles Darwin (1809–1882). Ger-

many, and, above all, the German philologists and historians, as also our physicists, chemists, anatomists, and botanists, take to-day the lead in new investigation by the strictness with which they hold to the programme of the new effort to understand. The external expression of this strictness is the famous "critical method," which is nothing else than the deliberate application of all their weapons to that highest goal. Like all "methods" it has sometimes been in danger of a certain ossification, and like subaltern minds everywhere, so here little talents and half talents often forget the purpose in the means. Now and then a sort of military drill intrudes, which lays more weight on certain show performances of "lower" criticism, (that is, criticism concerned with the single passage) and "higher" criticism (that is, criticism having to do with the work as a whole) than on the goal of intellectual assimilation. It is, of course, no accident that the most famous schools of the critical method have been in North Germany; for classical philology Gottfried Hermann in Leipzig, Lachmann, Haupt, Kirchhoff, Vahlen in Berlin; for Germanic philology Lachmann again and Haupt, then Müllenhoff and Scherer in Berlin; for history Ranke in Berlin and his pupil Waitz in Göttingen; for physiology and the kindred sciences Johannes Müller in Berlin, whose instruction Helmholtz, Virchow, De Bois-Reymond, and Ludwig all profited by,—all later themselves distinguished heads of schools in North Germany; for chemistry Wöhler at the same university, whose friend Liebig held in Munich the one chair equally famed with the North German homes of exact science. It is, as said, no accident that here North German universities, above all (along with that old home of exact science, Göttingen) Berlin, have taken the lead, while in theology, for example, South Germany has set the standard. There is something specifically North German in this task; method is scientific discipline, subordination to strict rules; and the school of the seminar and the laboratory imparts to its participants something of the spirit of military service.

In North Germany, too, have appeared the disadvantages of the system. In the first place, as has been said, in the over-

estimate of "method," as if this introduction to the proper use of the given sources were an independent worker of wonders. Secondly, an overstraining of criticism, a hypercritical penetration, which is too ready to pronounce verses "impossible" and documents "forged." Finally, a neglect of form in presentation, which, for a time, brought German scholars into disrepute. In this, other countries have paid back to Germany their debt by taking the lead in the demand for clearer, more popular presentation. What was a matter of course in England and France, has now been generally accepted in Germany. So criticism has approved itself even on the representatives of the critical method; so the land which gave the world the spirit of the new criticism, in completed form, has passed from its isolated position. There is a cosmos of investigators, all of whom help one another. As do the sciences, so the scholars form an ordered realm, whose unity even in externals finds fuller and fuller expression. And at least in this sense can be repeated to-day Ulrich von Hutten's saying, "Men's minds are awaking, science flourishes, it is a pleasure to live."



THE DECLARATION OF RIGHTS OF 1789

ANDRÉ LEBON, *Paris.*



THE French Chamber of Deputies, in one of those frequent outbursts of an enthusiasm that is too little tempered by reflection, has just decreed that the Declaration of the Rights of man and of the citizen, solemnly proclaimed in 1789 by the Constitutional Assembly, must for the future be posted, in a permanent way, in all the schools of the metropolis. During the last years, we had in a measure lost from sight this forever memorable monument of political philosophy; and, assuredly, it is no bad thing that it should be placed before the eyes of the young generations, especially because, if intelligently commented upon by the schoolmasters, it ought to teach the youth of France what an abyss divides the most generous sentiments of the human mind from the realities of public life,—all that lies between theory and practice.

Bentham, whose sound sense certainly cannot be disputed in this instance, wrote on this subject to a member of the Constitutional Assembly: "I regret that you have undertaken to publish a declaration of rights. That is a metaphysical work, the *ne plus ultra* of metaphysics. It may have been a necessary evil; it is not the less an evil. Political science is not sufficiently advanced to make such a declaration possible. Whatever the articles may be, I guarantee that they may be classed under three heads: first, the unintelligible; second, the false; and third, those that are both. You can never make a law against

which it cannot be alleged that, in its very existence, you have repealed the Declaration of Rights, and the allegation will be irresistible."

Indeed, there was hardly a law promulgated during the last century, or there is scarcely one in making at the present time, of which we may not say that, in one way or another, it contradicts the Declaration of 1789. The political constitution, properly so-called, that is, the whole of the organic rules of national life, has changed a dozen times since then : civil and criminal legislation has been overloaded with a number, which is fairly incommensurable, of precepts either totally new or recast from more ancient times ; but the Declaration continues to look down, from its lofty height, immovable and doubtless inaccessible, upon the perpetual shifting of more or less ephemeral political and social enterprises. It has been religiously transmitted from régime to régime, and from generation to generation. From time to time, we bring it to the light from its hiding place beneath dusty and mysterious traditions that we may provide it, as has just been decided by the Chamber, with a more concrete and tangible existence ; but never do we honestly ask ourselves in what measure is the Declaration true, or in just what degree is it respected ; how far we have deviated from it, or how much of an effort we have made to hold to it.

And yet, how many patent and crying contradictions between facts and doctrines ! "Men are born and live free and equal in rights." Men ? and why not women ? and why not the negroes and Mongolians to whom we refuse the right of suffrage unless they had the good fortune to be born in one of the colonies occupied by France before 1848 ? and, again, why not the soldiers, whose exercise of the elective power is suspended during the time they are in service ? The Declaration itself, it is true, has foreseen, in a second sentence, that the first is not of an easy or unlimited application. "Social distinctions," it says, "can only be founded on common utility." But if "common utility" intervenes to establish distinctions, what becomes of the principles and who is the judge of this utility, if not those whom the

chances of popular impressions, often even of clever legislative artifices, have put in possession of power and legislative authority ?

It is true that "the principle of all sovereignty has its seat essentially in the nation," and that "no body nor individual can exercise authority which does not come expressly from it." But just exactly what is "the nation" ? Is it necessarily composed of the two hundred thousand duly qualified electors or definitively of the eight or ten million male citizens, civil and of age, that legislation, in the broadest sense, summons to the ballot boxes ? And, besides, they only speak to us here of the "principle of sovereignty." The principle—very well ; but what of the application ? Why exclude the plebiscite, the referendum, the popular assemblies, and other organs of direct government ? why admit of the exercise of power by delegation or representation ? why give to the elective chambers distinct electoral origins, commissions of unequal duration ? By reason of motives that are drawn from practice, from experience, from considerations of a utility that arises wholly from circumstances—thoroughly rational motives, for the rest, most excellent and authoritative for one country, or for a definite length of time, but that are very questionable anywhere else, or at any other moment, and that have nothing whatever to do with theory. What good then to formulate abstract rules, if not, as Bentham said, to justify every one in the reproach that "each law repeals the Declaration of Rights" ?

Examples might be multiplied. The exercise of the natural rights of every man (liberty, property, security, and resistance to oppression) have only those limits which assure to the other members of society the enjoyment of the same privileges. The law has only the right to forbid actions that are "injurious to society." But, alas ! it is precisely as to the question of just where we must place these "limits," and *à propos* of the definition of what may be "injurious to society" that arise the most acute and often the most inextricable conflicts. Take, for instance, more especially, the dogma that all citizens "are equally admissible to all public dignities, places, and employ-

ments, according to their capacity, and without other distinction than that of their virtues and of their talents"; and, again, that "no one should be molested in regard to his opinions, even his religious opinions, provided that their manifestation does not trouble the public order established by law." But, at this very moment, when they have just decided to post these admirable maxims, a serious discussion has arisen as to whether the entrance to all public functions should not be refused to young men who have been educated in houses of religious instruction; and they have decided to withdraw from the members of certain monastic orders the right of teaching, outside of the state schools.

And so it goes. To tell the truth, whoever does not know the history of France and French constitutional law in sufficient detail must be strangely mistaken concerning the origin, character, and compass of the Declaration of Rights! It is distinguished in many respects from the Declaration—in general so closely allied to it—that exists in North America; both when we consider the constitution of the various States of the Confederation, and when we compare it with the amendments of the Federal Constitution itself. When the French drew up their Declaration, they did not enjoy any of the rights that they claimed, and they sought to borrow from the depths of natural law the moral authority for the desires to which they wished to give expression; the ambitions that animated them; the programme of the political action that they proposed to themselves. The Americans, on the contrary, decreed in the wording of their Constitution the liberties and prerogatives of which they were already in possession, and which they wished to remove from the vicissitudes of politics; forbidding, for example, either a Federal authority or Legislature of the State to pass any laws on such and such a subject. Consequently, the purely general and abstract tone of the French Declaration of Rights, and, on the contrary, the infinitely more positive bearing of the kindred American Declaration. There is also another result: the French Document is, in some sort, exterior to the Constitution; the

latter has changed many times; the Declaration alone has preserved its original form. But it has been preserved with its own peculiar characteristic, that of having no legal value: no court of justice, however high in the judiciary scale, has the power to attach to it any penalties that it does not admit of, nor to refuse the application of a law with which it would be at variance; while the clauses of the American Constitution, since they are incorporated in the positive law, have the same existence, the same protection as the latter; and the Supreme Courts, either of the State or the Union, have the power to proclaim a law inadmissible because unconstitutional.

The Declaration of 1789 is then purely philosophical, and philosophical it will remain, as Bentham foretold, whether it is posted in the schools or not. Moreover, this was the character indeed that its authors pretended to impress upon it. "We wish," said Dupont, one of the most influential of them,—“we wish to make a declaration of rights for all men, for all time, and for all countries, and thus serve as an example for the world.” Indeed, they have succeeded so well that we may well ask if at any time the Declaration has suited the needs and realities of any man or of any country. And yet, there is no doubt that it has “served as an example to the world,” and that by the very generality and generosity of its ideas, by the amplitude of its formulas, and by the nobleness of its bearing, it has enjoyed an extraordinary celebrity throughout the whole earth.

It has been the vehicle of humanitarian aspirations and of popular passions everywhere in the world; it has acted as the breviary of the countless resolutions that have marked the nineteenth century, and those that proceeded from the French Revolution. It has collected, in a few short aphorisms calculated to move the people, the doctrines scattered in the teachings of the philosophers. It has served as flag and symbol for the democratic evolution of modern societies. In virtue of this, and principally from the standpoint of the history of the human mind, there is an inestimable value in its teachings.

It has not been successful, as we have said, in respect to the

knowledge that it could give of positive institutions. And yet, to look at it more closely, we cannot say that it has been without practical influence. We cannot deny, for instance, that many reforms have been accomplished, and much progress realized in the meaning that it has assigned to the efforts of political societies. Between its ideal and the spectacle that the latter afford, there is not more divergence perhaps than exists between certain elementary principles of the Christianity of the early ages, and the picture that Christian societies present in our own day. But especially has it had a decisive and imperative influence on the form of speech among statesmen; upon the form in which the laws have been drawn up, and on the style of diplomatic treaties. Once promulgated, it has not been possible to ignore its existence, incrustated as this is in every mind and in every consciousness; it has entered into the traditional and inalienable patrimony of all civilizations worthy the name, and according to a penetrating remark made by one of the masters of constitutional history, M. Boutmy: "The necessity of hypocrisy—its supreme homage to virtue—has been henceforth imposed upon those who violate it."



THE PRINCIPLES OF MODERN DIETETICS, AND THEIR IMPORTANCE IN THERAPEUTICS

CARL VON NOORDEN, *Frankfurt, a. M.*

(Concluded from May number.)

B. EXCESSIVE NOURISHMENT.



THE opinion of Von Liebig, formerly held, was that the more food conveyed to the animal organism, the more was decomposed,—just as a furnace burns the faster the more liberally it is supplied with coal or wood; that all food above a certain minimum maintenance ration went to increase the combustion. This was called surplus consumption. This old doctrine is now entirely overthrown. The body does not decompose or burn up more because of an over supply than it would without this. If the combustion in the body stands in equilibrium with the food supply, and a surplus is then offered it, for example, fifty grammes of fat, this quantity (apart from the slight loss due to the greater effort of digestion, etc.) is wholly stored up. In place of the fifty grammes of fat, we should have had precisely the same quantitative effect from one hundred and thirteen grammes of carbohydrates; for this amount is, according to the isodynamic law, the equivalent of fifty grammes of fat, and is changed by the organism into

the same amount of fat. Overfeeding, then, does not increase *combustion* in the body, as it does in a stove, but it increases the *mass of the body*. On this law rests the possibility of the fattening process. We maintain that in principle every animal is capable of being fattened; assuming that we can overcome any practical difficulty that may be encountered on the side of the digestive organs.

We know already, on the basis of the above figures, how much nutrition to furnish to the organism in order to compel it to lay on fat. In the case of a person lying quietly in bed, it must be more than thirty-five calories per kilo of his weight, and in case of one who moves freely around, but without much muscular exertion, more than forty calories per kilo. In practice the consumption is usually much higher. In the numerous cases of this kind which I treat in my clinic, the daily ration reaches almost always sixty to seventy calories per kilo. Under such a regimen, the weekly increase in the patient's weight averages about two kilos (= 4.4 lbs.), without keeping the patient in bed. On the contrary, I allow the patient, from the first day of the treatment, to indulge in long walks and all sorts of gymnastic exercises. In this I have departed from the principles advanced by Weir-Mitchell in America and of Playfair in England; for these physicians recommend entire rest in bed in the early part of the treatment. My experience has been that the effects are more enduring, and that the muscles gain strength more rapidly when muscular exercise is freely permitted from the very first. I add an example in order to demonstrate the calculation: a young woman of twenty-two years, who had suffered for a long time with nervous dyspepsia and headache, and had lost, in the previous two years, eighteen pounds in weight. All the organs were sound; weight at the beginning of the treatment forty-eight kilos (106 pounds). I calculated the maintenance ration at forty-eight times forty calories, equal to 1920 calories daily. The girl stood exceedingly well a ration which, although rich in fat, was, in the main, quite simple. The daily ration was as follows:—

	AMOUNT.	ALBUMEN.	CARBO- HYDRATES.	FAT.
Cream	500 grammes.	15 grammes.	15 grammes.	150 grammes.
Milk	500 "	20 "	24 "	15 "
Eggs (6) =	300 "	41 "	— "	33 "
Wheat Bread . . .	200 "	15 "	120 "	4 "
Potatoes	100 "	1 "	18 "	—
Butter	150 "	—	—	120 "
Meat	200 "	40 "	—	5 "
Oatmeal	40 "	5 "	27 "	2 "
Grapes	500 "	5 "	75 "	—
Totals	2490 grammes.	142 grammes.	279 grammes.	329 grammes.
In lbs and ozs. . .	5 ¹ / ₂ lbs.	5 oz.	10 oz.	11 ¹ / ₂ oz.

This food had the following value :—

142 grammes albumen multiplied by 4.1 = 582.2 calories.
 279 grammes carbohydrates " " 4.1 = 1143.9 "
 329 grammes fat " " 9.3 = 3059.7 "

Total 4785.8 "

This is more than double the calculated maintenance ration of 1920 calories. In the course of five weeks, the weight increased twelve and four-tenths kilos (= 27.3 lbs). The therapeutic success was complete and lasting. The above is naturally only an example to show the calculation and the success of a properly managed course of treatment. In practice every physician, who is not a slave to fixed rules, will adapt the selection and amount of foods to the individual case.

In the fattening treatment, the portion that is deposited as a part of the body consists in very large measure of fat, and this, too, whether much or little albumen is given in the ration, and whether the chief weight is laid upon the carbohydrates or upon fat. On the other hand, I must emphasize the fact, again in opposition to other authors, that the treatment has only a very small effect on the growth and multiplication of the somatic cells (protoplasm) and on the formation of muscular tissue. That a richly nourished body develops better muscles than one that is poorly nourished is a matter of course; but it is in vain to attempt to make a man muscular merely by liberal feeding. You may by heaping up the food succeed in smothering him in fat,

but you will make no athlete of him. The deposit of albumen in the body, that is, the building up of new blood and protoplasmic muscle and glandular substance, follows quite different laws from those which govern the formation of fat. According to general experience, and in harmony with valuable investigations in regard to food change, we find abundant formation of muscular tissue: (1.) In every growing body. (2.) In a body that has ceased growing, but is getting accustomed to increased muscular exertion (hypertrophy of the muscles through labor). (3.) Always when, through previous sickness or poor nourishment, the amount of muscle has been lessened, and now a richer nourishment makes the compensation possible. It would, however, be a great error to look for the source of this increase of muscle in the fattening nature of the food; it is rather the expression of the regenerative energy of the cells.

Increase of muscle in the narrower sense is, therefore, in much higher degree, a function of the specific energy-growth of the cells, and a function of cell action (muscular exercise) rather than a function of high feeding. If we wish to make the body muscular and strong, we must bring to bear other forces besides extra nourishment, such as muscular labor. The working muscle grows; it is furnished, as it were, with magnetic attraction for albumen; the muscle at rest decomposes the albumen, but retains nothing for the building up of new muscular substance. This is the reason why I do not send the patient to bed, but hold him from the beginning to a course of strengthening exercise.

We make very frequent use, nowadays, of the fattening cure in medical practice, especially in cases of a chronic state of exhaustion from the most various causes. It was first employed systematically in tuberculosis of the lungs,—by Dr. Brehmer in Görbersdorf, and Dr. Detweyler in Falkenstein a. T. Our modern treatment of consumption rests chiefly on this. I believe, however, that the importance of this cure in the treatment of phthisis is beginning to be overestimated, and the importance of the other approved remedies, such as the selection

of an appropriate climate, underestimated, at least in Germany. The employment of the fattening cure received a very significant and beneficent expansion at the hands of Weir-Mitchell, who has shown its value in cases of nervous prostration, and in many forms of hysteria. Of late, the fattening cure has been employed in the numerous cases of nervous disturbance of the digestion, and even in cases of genuine disease of the stomach and bowels. I have never seen more beautiful results of this cure than in just such cases, although they frequently offered considerable difficulties in the carrying out of the treatment. In general, it may be said that every man whose weight does not correspond to his stature would be benefited by this cure.

C. INSUFFICIENT NUTRITION (OBESITY CURE).

We understand by this a ration with which the organism cannot make good its losses. Insufficient nutrition is brought about in the following ways: (1.) When without disturbing the usual bodily habit (some bodily loss), for various reasons, the average ordinary supply of food is lessened. (2.) When maintaining the accustomed ration severe muscular exertion is employed to increase the process of oxidation. (3.) By combining smaller supply and increased expenditure. It was formerly believed that when the body received less nutrition than was necessary to offset the waste, it diminished this waste, and slowed down the process of combustion automatically, just as a conscientious housekeeper sets a lower standard of living when the family income is decreased. This was called "retardation of the metabolism." Experimental investigation has shown this assumption to be an error. The body cannot economize in this way; it burns just as much material when purposely fasting, or when it is compelled by sickness to take a smaller supply, as when it is full fed. The only difference is that on full rations the losses are covered by the supply, and the bodily substance remains intact; on short rations, on the other hand, the body lives on itself, burning and destroying its own substance. The body becomes lean. It has been shown that five sixths or more of

the deficit is made up from the fat of the body, and less than one sixth from albumen. This is all important, for the albumen of the body is far more valuable and more difficult to replace than is the fat.

In the case, for example, of a young man whose metabolism I investigated, it was shown that his weight remained constant a long time, when he received a maintenance ration of 2085 calories daily. We then diminished the ration to 1490 calories. He had accordingly to meet the difference, 595 calories, by a sacrifice of his own bodily substance. The metabolic investigation showed that of this amount 53 calories, or 8.9 per cent of the loss, came from the albumen of the body, and 542 calories (91.1 per cent) from the fat.

Extended and painstaking investigations show, further, that the leanness which is observed in the most diverse kinds of sickness is due, for the most part, to the altogether too meagre supply of nourishment. It was formerly supposed to be the destructive influence of the disease itself, rather than a lessened supply of food, that caused the reduction of flesh. So long as this view prevailed, less weight was laid upon the quantity and calorie value of the food which the sick ate. They sought to obviate the harmful influence of the disease upon the nourishing of the body by prescribing certain dishes and forbidding others. Important as a right selection of dishes may be, yet, lacking the safe guidance of the theory of metabolism, they wandered off into all sorts of strange vagaries and useless niceties. Mere side issues were regarded as of primary importance, and this prejudice has not died out to this day. Not until it was realized how much the loss of flesh on the part of the invalid depended on insufficient nourishment, did dietetic therapy venture to meet the undesirable loss of weight by using every means to increase the supply of food. Keeping this aim in view, one will naturally be guided in the choice of dishes and the hours of eating, etc., by the nature of the disease, and not less by the individuality of the patient. It is certainly wonderful what remarkable successes have been attained by it, and under what difficult circumstances the patient

has been guarded from loss of weight, and the period of convalescence shortened. For instance, formerly, patients with typhoid fever, or with serious septic infection, usually lost 25 to 30 per cent of their weight. By the present methods of nutrition, the loss of weight is only a small percentage; I have, indeed, treated several typhoid fever patients who, during the period of fever, actually gained a few pounds, due to the careful selection of the ration.

A systematic use of insufficient nutrition is generally made only in cases of obesity. A person is obese only when he eats more than he burns up, or when he burns up less than he eats. All methods for cure of obesity have, therefore for their aim, first, to lessen the food supply, or, secondly, to increase the oxidation. Even forbidding the drinking of water, which has become so popular in late years, has no other object than to dull the appetite, and so to reduce the amount of food taken. We have seen that insufficient nutrition puts in jeopardy not only the fat, but also the albumen of the body. The fear is properly entertained that the obesity cures may make the body poorer in albumen, that is, weaker. I have, however, succeeded, with the assistance of my pupil Dr. Dapper of Kissingen, in showing that, by an obesity cure, cautiously managed, one can so regulate the metabolism that fat only is lost, but no albumen,—a very important result. Our investigations have shown that, in this respect in general, among the many obesity cures, the old method of Banting-Harvey deserves the preference. This method consists in keeping fat out of the food as far as possible, and in severely limiting the carbohydrates, while the albuminous substances are given in rich measure. It is interesting to see how far the food supply is reduced in a typical obesity cure. In the Banting diet are contained :—

172 grammes albumen multiplied by 4.1	=	705.2 calories.	
8 grammes fat	“ “ 9.3	= 74.4	“
81 grammes carbohydrates	“ “ 4.1	= 332.1	“
		<hr/>	
Total		1111.7	“

We see that here a ration is given that under normal conditions would scarcely suffice for a person weighing twenty-eight kilos, (corresponding to a daily consumption of at least forty calories per kilo). That the body under these conditions must grow lean, sacrificing some of its substance as fuel, is natural, and all the more when, with a shortening of the ration, is combined increased muscular action (hill-climbing, etc). The reduction of flesh attained under such a regimen amounts, in my experience, to about from four to six pounds per week.

I regard it as instructive and interesting to show the reader an example of how the food value of a ration is calculated. This case is that of a man who weighed 125 kilos (=275 lbs). I had reason for reducing the weight slowly, and so the ration was not reduced as much as would customarily be the case in the system of Banting-Harvey. I choose for the calculation the ration of a certain day. On the other days, the food was similar, that is, the separate components of the ration changed from day to day, but the amount of albumen, and the calorie value of the whole ration remained the same.

The calorie value of this ration is as follows:—

165.0 grammes albumen	multiplied by	4.1=676.5 calories.	
32.2 grammes fat	“ “	9.3=299.5	“
101.2 grammes carbohydrates	“ “	4.1=414.9	“
Total		1390.9	“

There was contained, besides, in this ration one pint of seltzer water of no calorie value, and 400 grammes, or nearly one pint, of light white wine, having 8 per cent of alcohol and a calorie value of 32 grammes alcohol multiplied by 7.0=224 calories, so that the whole day's diet reached the value of 1614 calories. The following is the scheme:—

	Albumen. Grammes.	Fat. Grammes.	Carbo- hydrates. Grammes.
7 A. M.			
1 apple, 100 grammes	0.5	—	8.0
8 A. M.			
2 cups tea with two tablespoonfuls of milk	1.0	1.2	1.5
30 grms. rye bread	1.9	1.0	16.0
100 " cold roast beef, without fat .	30.0	2.0	—
12 M.			
200 " bouillon (fat removed) . .	1.0	3.0	—
200 " lean meat weighed raw, and broiled	40.0	3.0	—
100 " boiled potatoes	2.0	—	20.0
500 " asparagus	2.0	—	12.5
10 " butter with last two dishes .	—	8.0	—
1 cup black coffee	—	—	—
5 P. M.			
1 cup tea (without sugar or milk) .	—	—	—
1 egg	1.1	5.4	—
8 P. M.			
12 oysters	4.5	1.0	3.2
200 grms. bouillon (fat removed) . .	1.0	3.0	—
200 " lean fish (weighed raw, broiled, eaten with lemon juice) .	36.0	1.0	—
150 " roast beef (from the centre of the roast, fat crust re- moved)	40.0	3.0	—
100 " potatoes	2.0	—	20.0
100 " tomatoes, raw, with salt and pepper	0.3	—	2.0
20 " bread	1.2	0.6	10.0
100 " apple, raw	0.5	—	8.0
Total	165.0	32.2	101.2

The result of this diet, in connection with diligent muscular exercise, was that the patient's weight was within three months reduced by twenty-seven kilos, or sixty pounds, and that the patient felt uncommonly well during the cure, and also afterwards.

The diet we have just described will hardly impress the layman as calculated to reduce flesh; for it is well selected and combined, and satisfies hunger completely. It obtains its character of a flesh reducing diet from the fact that with great care

such materials were chosen as would satisfy hunger, and yet possess a very low calorie value. In order to keep up his weight, the patient would have had to consume a ration at least 500 to 600 calories richer.

The question has long been discussed, whether fat people are fat because they eat too much, or because they exercise too little, or because their protoplasm is affected by an abnormal lack of oxidizing power. This question is hard to answer with scientific exactness. I have succeeded in certain observations, which are given in my book on obesity ("Fettleibigkeit"), in making it probable that, in the case of many fat people, an unhealthy lowering of the power of oxidation is really present. Many very recent experiments seem to point to the same conclusion. This question, so important for theory and practice, must be left undecided at present.

Of great interest is it, that a substance has been found which, in certain forms of obesity, increases materially the body's power of oxidation, so that more is burned up, and in this way the patients lose flesh without shortening the ration, and without increasing their exercise. That is the substance of the thyroid gland. The treatment of obesity with tablets containing the extract of the thyroid glands of sheep or calves seems, accordingly, very rational and much more convenient than to subject the patient to all sorts of self-denial in eating and drinking. And yet, this method of treatment entails so many other disadvantages for the organism, especially for the heart and the nervous system, that the original enthusiasm has already very much abated.

Systematic insufficient nutrition is used not merely in the case of obesity, but also in many cases of diseases of the heart and blood-vessels, and, further, in chronic Bright's disease of the kidneys. But, here, it behooves one to proceed with caution. We like to keep all such persons in a somewhat lean condition, because in such diseases the great danger lies in weakening the heart. When the heart has to provide for a lean body, less labor is demanded of it: it is better protected. In supplying blood to

a very heavy body, more exertion of the heart is called for, and its forces are the sooner exhausted. The introduction of this dietetic point of view in the treatment of heart troubles by the late Professor Oertel was exceedingly beneficial, and has already served to prolong the lives of many sufferers from heart disease. Naturally one dare not carry the method of insufficient nutrition too far; it is the duty of the experienced physician to know when the time has arrived to stay his hand.

D. THE FOOD VALUE OF ALCOHOL.

Before leaving this chapter, we have still to speak of a very important and much discussed question: whether alcohol is a food or not. As every one knows, there is a mighty movement in all civilized countries against the use of alcohol. The anti-alcohol league endeavors to banish alcohol completely from the human ration. They seek to compass this end partly by forming societies or clubs, partly by educating the masses through public lectures, partly by legislation. They wish to interdict the use, not only of strong spirits, but also of the lighter beverages, as wine, cider, beer, etc. The core of the agitation is undoubtedly sound. We have to admit, from the physician's point of view, that just as much harm can arise from wine and beer as from cognac, rum, whiskey, etc. We hope—but unfortunately it is hardly probable—that the agitation will succeed in limiting the misuse of alcohol to a minimum. Although we desire this very much, yet science must see to it that the fanatical members of the anti-alcohol league shall not hide or pervert firmly established scientific facts, in order to favor the interests of their agitation. One of the weapons in the fight against alcohol is the assertion that alcohol is not a food. This is not true. Unobjectionable experiments, carefully thought out, have shown that the greatest part (90 to 95 per cent) of the alcohol taken is burned in the body. During the oxidation of the alcohol, the oxidation of fat in the body diminishes. In other words, the alcohol, more easily oxidized than the fat, presses to the fore, and hinders the combustion of the fat; that is, spares

the fat. Something similar would obtain in a stove which one should supply with coal and alcohol. The inflammable alcohol would be the first to take up the available oxygen, so that less would remain for the combustion of the coal, and, in this way, less coal would be used, until the alcohol was consumed. We reckon, as was said above, among the true foods organic substances which are fitted to enter into and become a part of the body, or which by oxidation serve as sources of heat and work. Alcohol lacks the first quality : it never becomes a part of the body, and has, so far as we know, no capability of being transformed into fat or carbohydrates. On the other hand, it possesses the second quality in marked degree : it becomes oxidized ; it becomes a source of heat and capacity for work ; it saves, in this way, from decomposition and combustion other material which has the capability of becoming a permanent part of the organism. More than this, we know exactly how much fat the alcohol saves from combustion. We know this by comparing its value in calories with the value of fat in calories :—

1 gramme of fat furnishes the body 9.3 calories.

1 gramme of alcohol “ “ “ 7.0 “

The body acquires, therefore, the same amount of “potential energy” from 70 grammes of fat as from 93 grammes of alcohol, or 93 grammes of alcohol consumed in the body, save the expenditure of 70 grammes of fat. This agrees with the observation of every layman, that those who use much alcohol have a strong tendency to obesity. Exceptions are found only in the case of “professional” drinkers. The explanation of these cases is that these people lose their appetite, and take very little other food. Any one who knows these facts : the oxidation of alcohol, and the substitution of alcohol-combustion in place of fat-combustion, and, in spite of this knowledge, denies the food value of alcohol, sins against the law of the conservation of energy. This means in science as much as is meant in religion by sinning against the Holy Ghost.

Although alcohol is a food, no sensible physician would recom-

mend the use of alcohol in the same quantities as fat or carbohydrates. For another quality of alcohol tells against this: its poisonous character. Alcohol is poisonous to the cells, especially to the cells of the nervous system,—the liver, the kidneys, and the blood-vessels. The body can, to a certain extent, adapt itself to this as to other poisons, but only within narrow limits. If these limits are overstepped, certain diseases of the cells are sure to follow, causing serious disturbance of the health, and, with many persons, bringing the moment of death nearer by decades. We have no objections to make when men bring before our eyes, in glaring colors by pen and tongue, this great danger in the misuse of alcohol; but we must raise our protest when they obscure a physiological fact, the food value of alcohol, and try to make, with this falsehood, propaganda for a cause which in itself is undoubtedly good.

III. THE ADVANCES OF DIETETICS IN CERTAIN CLASSES OF DISEASES.

We turn now to certain special classes of diseases, but only to those the significance of whose dietetic therapeutics can be made clear to laymen.

A. DIABETES MELLITUS (GLYCOSURIA).

One of the most important and interesting diseases affecting food transformation is, without doubt, diabetes mellitus. Its etiology is still obscure. Although experimental research has made clear the importance of the pancreas in the origin of certain forms of diabetes, no great understanding of the disease has been won by it, and, besides, it is not necessary for us to take up this question here. The essential disturbance in diabetes consists in the fact, that the organism is not in condition to burn its carbohydrates. The carbohydrates of the food, and, in severe cases, the carbohydrates also which originate in the body itself, from albumen or fat, flow off through the urine in the form of glucose (or grape sugar). Many sufferers from diabetes can consume a certain amount of carbohydrates without danger, others cannot endure the smallest quantity. Such sufferers lose, in this way,

one of the most important elements of food. If they were to eat the same things that men commonly do, they would starve to death. My readers are now so well instructed that I can give them an example.¹

Diabetic patient B. received a ration composed as follows:—

150 grammes of albumen	=615 calories.
100 " " fat	=930 "
200 " " carbohydrates	=820 "
<hr/>	
Total	2365 "

From the urine, however, were recovered of the 200 grammes of carbohydrates 180 grammes of sugar, which had passed through the body unused. These 180 grammes of sugar represent a value of 738 calories by which amount the value of the food was diminished. While, therefore, a sound man would have obtained from the same ration an amount of nutrition equal to 2365 calories, our diabetic patient secured only the equivalent of $2365 - 738 = 1527$ calories. With this amount, he could naturally not maintain his weight of 65 kilos, for this would give only 23.5 calories per kilo, and he would have had to supply substance from his own body, and be destroyed, unless his ration was changed so as to correspond to his diseased condition. The only remedy is to feed the patient with albumen and fat, since he can assimilate the carbohydrates but little, if at all. We may go to great length in supplying such a patient with fat, in order to bring the calorie value of his ration up to the desired height. As much as 150 to 200 grammes of fat daily has proved to be a judicious quantity. Special research was made to see whether the digestive apparatus was equal to the task of managing such masses of fat. The result was surprisingly favorable, for very few grammes of the fat passed through the bowels undigested. Whoever has followed the literature to any extent must recognize that, before all, it has been the exact investigation into the metabolism of the food that, in the conflict of opinions as to the proper nourishment for

(1) Published in my book, *Die Zuckerkrankheit und ihre Behandlung*, Seite 175, 2, Aufl, 1898.

diabetic patients, has finally brought order out of confusion, and created a basis for further discussion. And yet, it should be especially emphasized that there is no definite diet adapted equally to all such patients, but rather that each case must be tested and studied by itself, before one can prescribe for it the most appropriate diet. This new, strictly individualizing method, is known in the literature by the name of the methods of E. Külz and of Von Noorden.

Unfortunately, the endeavors, by means of investigations of metabolism, to throw new light on the pathology of gout, and thereby to win new points of view for its dietetic therapeutics, have not been crowned with success. In spite of our efforts, we are obliged to rely, as far as gout is concerned, upon raw empiricism.

B. DISEASES OF THE STOMACH.

Among the organic diseases, those of the stomach and bowels have received the greatest gain from the more accurate knowledge of the chemical composition of foods and from the investigations into the changes of the same within the organism. Since the stomach pump has become a necessary instrument for every physician, and simple methods for examining the contents of the stomach have enabled him to become acquainted with the quantitative and qualitative anomalies of the processes of digestion, the prescription of a properly chosen diet has become much easier than formerly.

Above all, we now possess exact tables showing the length of time the different sorts of food remain in the stomach and the quantity of gastric juice necessary to digest them. According to the rapidity with which, as determined by the stomach pump, the stomach of the patient works up the food, and, according to the quality and quantity of the gastric juice, we can select the dishes which will least burden the diseased stomach. We are thus placed in a much more favorable position in the treatment of stomach troubles than were our forefathers, who had to make their dietetic prescriptions without any knowledge of the chemical relations involved. For example, there are certain forms of stomach

trouble, those that involve excessive secretion of the gastric juice, in which the abundant supply of fat, especially of butter, is not only harmless, but even serves as the proper remedy. What physician would have dared, before exact research had shown this undeniably, to prescribe in a case of disease of the stomach a diet rich in fat? On the contrary, until quite recently, every sort of fat was most anxiously avoided. We must admit that many cases of stomach ailment, especially chronic ones, were injured by this deprivation of fat. The patients had to subsist essentially on albuminous substances and on easily digestible carbohydrates. Now, it is very difficult, on account of the small calorie value of albumen and the carbohydrates, to make up a ration from them that shall have a sufficient calorie value, since the sufferer from stomach trouble cannot bear a large quantity. If we reckon up the bills of fare as they were formerly, we shall find that their calorie value amounts to scarcely more than 1500 calories *per diem*. That was far too little to maintain the weight of the body, much less to increase it. As a consequence, the patients usually lost flesh very rapidly. Many, although the stomach was improved, were left after such a dietetic cure weaker than before. In acute disease of the stomach and bowels this weakness is of no weight. Here, the procedure that leads to the safest and most speedy results is the fullest protection of the organs through under-nutrition, and, in some circumstances, through complete withholding of food for several days. Whatever the body sacrifices from under-nourishment and fasting, in this short period of time, can quickly be made up again after the cure. It is different with chronic cases, where the dietetic treatment promises to consume many weeks and months. In such a case, we must strive with might and main to keep the calorie value of the food at least up to the maintenance ration.

If possible, however, the whole body should grow stronger under the treatment: this reacts favorably on the diseased organ. To this end, fat cannot be omitted from the ration, for without fat the necessary calorie value will never be reached. We see of what great importance it was to have shown that in certain

forms of chronic disease of the stomach, fat seems to agree well with that organ. In connection with this, it may be mentioned that, after painstaking researches into the processes of digestion, the decision has been reached at the water-cures in Carlsbad, Kissingen, Hamburg, etc., not to avoid the use of fat so anxiously as formerly. In many diseases of the digestive organs, the most surprisingly favorable results have been attained by the combined use of great quantities of fat, especially butter, with these mineral waters. Those who know with what pertinacity old prejudices perpetuate themselves at these water-cures, from generation to generation, will appreciate the significance of this revolution in the water-cure dietetics brought about by the investigations in metabolism.

C. DISEASES OF THE LIVER.

Laymen will take a general and intelligent interest also in these metabolic disturbances, and the new dietetic points of view gained from them in the case of certain diseases of the liver. It frequently happens that through some obstruction, as, for example, through a catarrh of the gall-ducts, or through the presence of stones in them, the bile ceases to flow into the intestine and to fulfill its part in digestion. Then the bile enters into the blood and urine, jaundice ensues, and the stools become gray or white from lack of bile. When the bile is completely shut off from the intestine, it is the digestion of fat that especially suffers. Of the fat eaten four fifths, or even more, is passed on out of the body without being changed or resorbed. It has been long known that under such circumstances fat was but poorly digested, but no one had imagined that the loss was so great. Reflecting that when fat is only slightly resorbed, the resorption of other nutritive elements suffers too, the physician adopts the rule, when the flow of bile is completely stopped, of eliminating fat as far as possible from the ration; for it is not merely useless, it may cause positive injury. At the same time, the experiments showed the remarkable result that such severe disturbances of the resorption followed only from total stoppage of the biliary-ducts; if even a little bile

escapes into the intestine, which fact can be noted from the nature of the stools, the resorption of fat is retarded but very little. It is not necessary, therefore, to subject the sufferer from jaundice to the danger consequent on a removal of all fat from his diet, unless the biliary-ducts are completely stopped. It was, moreover, of great therapeutic interest to know how the resorption of food went on in those cases where the gall-bladder, the reservoir for the bile, was thrown out of action either by stoppage of the biliary-ducts by gall-stones, or by excision of the gall-bladder, an operation, nowadays, frequently performed. After this operation, the bile is not emptied into the intestine periodically at meal times, but is delivered in an almost steady stream. It was feared that this would occasion disturbance of intestinal digestion. Experiments on living persons, after destruction or removal of the gall-bladder, gave to the surgeons the quieting assurance that the removal of the gall-bladder causes no injury to the digestion or the resorption.

D. DISEASES OF THE HEART.

As already shown, modern dietetics has made valuable achievements in chronic diseases of the heart and blood-vessels. It had occurred to no one that the course of these maladies could be better managed by the rules of dietetics, until Oertel, in the year 1884, published his classical monograph. The practice had been to prevent the food from collecting in masses in the stomach and bowels. Oertel brought to the treatment two new points of view: (1.) He furnished convincing proof that many such patients are troubled with shortness of breath, palpitation of the heart, forebodings of evil, and other signs of heart-weakness, because they are too fat; or, in other words, because the mass and weight of the body are too great for the lessened capacity of the heart. In order to relieve the heart, he advised the obesity cure. This principle was in opposition to former practice: physicians had always been afraid to use the obesity cure in heart troubles, because they feared it would weaken the whole organism, and the heart in particular. (2.) Oertel showed that the patient must limit his consumption of fluids to the last degree. All the

fluids we drink are absorbed by the tissues, circulate in the blood for a time, and then leave the blood through the urine, through the skin, or with the breath through the lungs. When much fluid is consumed, the system of vessels is filled to excess, and the heart has to work harder in order to keep these greater columns of fluid moving, and to bring them into circulation. It is clear that we relieve the heart and protect its forces by limiting the supply of fluid. The average amount of fluid which we allow in these cases is about one litre. In this are not reckoned the fluids contained in the solid food. If these are included, the amount of fluid allowed, according to the modern rule, is, on an average, 1500 grammes *per diem*. It should be remarked, in order that the reader may appreciate these figures, that the amount of water which a well man consumes, including that contained in the solid food, averages in Summer 3000 grammes and in Winter 2500 grammes.

We see that in Oertel's system the points of view were not so much those of the chemist as those of the physicist. This system has, in the course of time, shown itself more fruitful and capable of a much broader application than Oertel himself supposed. While it was used originally only for heart diseases, strictly so-called, as valvular disease of the heart, fatty accumulations about the heart, atrophy of the heart, it has since been extended to all those conditions which result in difficulties in the general circulation of the blood, such as disease of the arteries (arteriosclerosis) and enlargement of the aorta, and to certain diseases of the lungs which hinder the exchange of gases in the blood, such as enlargement of the lungs and chronic bronchial catarrh.

E. DISEASES OF THE KIDNEYS.

Of late this method of Oertel has gained influence in the treatment of diseases of the kidneys, at least of the form known and dreaded under the name of chronic Bright's disease. This disease leads to a gradual wasting away of the kidneys. As the secretory surfaces become reduced in extent, the passage through them of the matter which is separated from the blood for excre-

tion is made difficult. The heart compensates for these difficulties by working harder. As indication of its increased labor, we find a noticeable hypertrophy of the muscles of the heart. After a while this hypertrophy is not sufficient, and we meet with symptoms of tiring and laming of the heart. The appearance of these symptoms can be considerably deferred by lightening the labor of the heart, due to the diseased state of the kidneys. This is accomplished by reducing the supply of fluid; a measure all the more necessary, since the patient with Bright's disease, if left to himself, drinks not only the normal quantity of water, but, to his injury, even twice the normal average amount. I regard the limiting of the supply of water in this disease as, according to my experience, one of the most important achievements of modern dietetics.

The idea would long since have been hit upon of applying Oertel's system in cases of Bright's disease, had it not been feared lest, by limiting the amount of water, the excretion of solid matter dissolved in the urine would be jeopardized. These products of combustion resulting from metabolism are in part very poisonous, and must be removed, else the organism would be severely injured. It was, therefore, an important problem of clinical experimental research to determine whether the excretion of these products was disturbed by the diminution in the volume of urine consequent upon a limiting of the amount of fluid drunk. Fortunately, this is not the case, and we dare hope that the limitation of the daily supply of fluid to about $1\frac{1}{4}$ litres *per diem* will prove to be in the future as beneficial to the victims of Bright's disease, and in lengthening life, as it is generally admitted to be in heart disease. The like consideration, protection of the heart forces, will compel us, in some cases, to a cautious use of the obesity cure for over fat patients with kidney trouble.

These points of view are of less importance in acute and in the sub-chronic forms of inflammation of the kidneys. For, here, we have only in very rare cases any immediate danger from overloading or weakening the heart. We take, here, other points of view, which have regard to the relief of the kidneys rather than

of the heart. These views culminate in strictly avoiding those foods, the products of whose metabolism pass out through the kidneys. In the first rank of these stand the albuminous substances, the so-called extractive matter of meats and the mineral elements. Here the experience stands us in good stead, that for a time the human organism can get along with very small quantities of albumen with no evil consequences for the general health; that the extractive matter is altogether superfluous; forming no necessary part of the nourishment; the mineral elements are always consumed by healthy people in much greater quantities than are necessary for the maintenance of the body, so that a considerable reduction is attended with no danger. By confining these three components of food within the narrowest possible limits, we spare the diseased kidneys so much work; we protect the organ, and improve the chances of recovery. It would be a great error, which I cannot explain here at length, to extend this point of view without farther question to the treatment of chronic diseases of the kidneys; for, here, the disadvantages which arise from one-sided nourishment, long continued, outweigh the advantages gained for the kidneys. The differences are comparable to that which we learned in the dietetic treatment of acute and of chronic diseases of the stomach.

F. FEBRILE CONDITIONS.

The researches into febrile diseases have been very fruitful. They have always been the favorite field of investigators in metabolism, or food change, and accordingly include the most important labors of the earlier period. Of especial importance were the earlier researches with regard to the resorption of the food. While it had been held that this was seriously disturbed by fever, the contrary was shown to be true. True, it is difficult to get the fever patient to take any considerable amount of nourishment; it excites his aversion and a tendency to vomit. When, however, the food is once in the body, and is not thrown out by vomiting, it is resorbed in a very satisfactory degree. The losses that pass out in the excrement exceed the normal, in many cases, not at all,

in others, even when accompanied by diarrhœa, as in typhoid fever, but little. Of course this discovery was of high importance, for it upset the old doctrine of "starving a fever," on the ground that food did the patient no good, and only burdened the bowels. A footing was thereby gained for positive advances in the field of fever dietetics, but still all sorts of prejudices stood in the way of a generous nourishment for fever patients. It was feared that the supply of food increased combustion in the body and intensified the fever. But experiences at the sick-bed contradicted this belief, and researches in metabolism made clear that an increase in the food supply had as little to do with increasing the oxidation of food in case of fever patients as in case of the well. The theory that a generous supply of food was unnecessary must be even here abandoned.

On the other hand, it was found by calculating the calorie values that the fever patient, if left to himself, took far too little nourishment. What the fever patient would take, if left to himself, or if limited to the fever ration of former times, would cover scarcely one third of the actual calorimetric cost of metabolism. By far the greater part of this cost must be covered by the consuming of the substance of the body; this leads naturally to a state of affairs hazardous to, and in long sickness endangering, life itself. After this knowledge was won, the true significance of a fact long known but difficult to comprehend, became clear. This fact is met with in all febrile diseases. While a well person excretes through the urine about the same amount of nitrogen as the albumen in his food contains, with fever patients there is a considerable excess of nitrogen in the urine. This proved that in fevers, besides the albumen of the food, albumen from the body itself was broken up and burned. It can be shown that this abnormal decomposition of albumen, which goes on at the expense of the albumen bearing tissues (muscles, glands, blood of the patient), is called forth by two entirely different causes.

The first factor in the destruction of the albumen of the body (protoplasm) is given by infection. The bacterial poisons that

produce the fever are, at the same time, poisonous to the cells. Cells become diseased and are destroyed; their albumen is burnt, and the nitrogen of this albumen goes into the urine. This toxogenic dissolution of the albumen, we cannot stop except by curing the disease.

The second factor in the destruction of the body albumen is furnished by insufficient nutrition (inanition); for whenever the body is inadequately supplied with nourishment, and has to consume itself, not only fat, but albumen as well, is lost.

This initial loss of albumen, due to insufficient nutrition, we can combat by doing all in our power to supply the patient with nourishment. In this way, we reduce the loss of albumen to a minimum. It is here of little importance whether we enrich the ration in albumen, in fat, or in carbohydrates. More depends on the calorie value than on the manner of its composition. I regard the knowledge that febrile wasting depends on two such different factors as toxogenic dissolution of the albumen, on the one hand, and inanition, on the other, as an essential and fruitful therapeutic acquisition; for only by that means has it become possible to mark with precision the goal and the limits of the dietetic art in febrile diseases.

We make much better progress at the bedside of the fever patient by keeping before the eye, as the only object worth striving for, the warding off of inanition, than we should by a random search after dishes that "will do the patient good," guided by unclear and ungrounded prejudice. The condition of the digestive organs may in special cases, as in typhoid fever, lay us under certain restrictions, but otherwise every variety of food must, in fever cases, be looked upon as useful and welcome, if thereby we can reach the goal of the fever dietetics, and prevent inanition and the initial loss of fat and protoplasm. With some fever patients, we get along better, and do them more good with pea-soup, sauerkraut, and roast pork, than with the finest calves-foot jelly and the tenderest breast of chicken. The old dogmatists in dietetics, whose footing was rather that of natural philosophy than the facts of the pathology of metabolism, would have been

horrified if they could have known what a vast variety of dishes we allow our fever patients nowadays.

I must now bring my sketch to a close. It does not lie within the scope of this essay to enter into further details, for I am not speaking here to my specialist colleagues, nor addressing my advice to them, but to the scientifically educated layman, in order to give him an idea of the methods of work and of the capabilities of modern dietetics, which is our weightiest and most promising instrument in the therapeutics of internal diseases. I hope I have shown that we find ourselves with dietetics, after centuries of aimless wandering, now for the first time on the firm ground of the exact sciences, from which we do not wish to depart. Alas! already sordid elements, emboldened by the confidence which the public has bestowed upon dietetic methods, have appeared in all quarters, hawking about their cheap wares under the fine sounding name of "natural cure." It cannot be emphasized too much that this so-called "natural cure" is as far removed from true science as was the quackery of the dark ages. It is a sad reflection that now, at the end of the century, that calls itself proudly the "century of the exact sciences," broad strata of the population do not hesitate to give ear to the prophets of charlatanism and of the "natural cure" rather than to men of science. I am of the opinion that the enlightenment of the cultured layman as to the methods and aims of scientific research will be the most effective means of combating such errors; and I believe that this appeal to sound sense will nowhere fall on more favorable ground than in that land whose development into one of the most powerful States of the civilized world has coincided with the "century of the exact sciences."

RAILWAY ALLIANCE AND TRADE DISTRICTS OF THE UNITED STATES

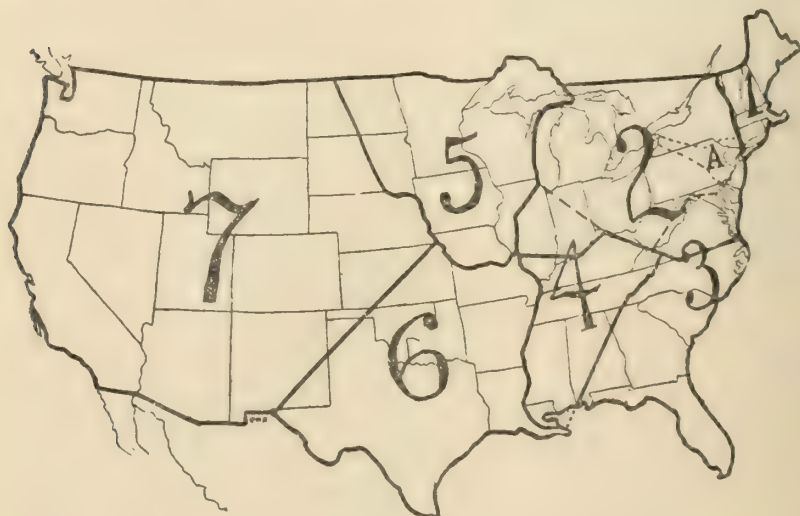
CHARLES H. HULL, *Ithaca.*



new principle has been introduced by recent railroad consolidations. The purpose of the earlier combinations, large as well as small, was rather to establish a railroad system within a trade district than to dominate the district as a whole. They were primarily administrative, not geographical. Each aimed to handle its own traffic, and to secure "a strong position." A strong position was useful in adjusting a pool with rivals whose geographical location was like your own. And if pooling were impracticable or illegal, a strong position might prove not less useful in fighting. Such was the purpose of the older consolidations, which have been going on pretty steadily since the fifties. The new consolidations are an affair of the last decade. Sometimes their form has been novel, sometimes familiar. In either case their purpose is new. They no longer attempt to strengthen rivals, one against the other within the same trade area. They plan rather to divide the field between former rivals, or to establish between them a Community of Interest sufficiently extensive to cover practically the whole of each great transportation district in the country, and sufficiently firm to withstand the attacks to which the earlier combinations succumbed. It is the purpose of this article to point out the scope of these designs, to inquire what progress has been made towards achieving them, and to

conjecture what some of the effects of their complete accomplishment may possibly be.

In order to understand the scope of these new developments, we must glance at the commercial geography of the United States, especially as it affects the railroads. In details there may be some uncertainty, even confusion; but the main features of our railroad geography are relatively simple. They can be understood readily enough by a brief survey of the great districts that our railways serve. Passing over minor features, we may distinguish broadly seven great transportation districts, which are indicated by the accompanying sketch map.



1. New England; all the country east of the Hudson and Champlain valleys.

2. The region between the North Atlantic seaports and the Middle West. This district is not strictly bounded by the Great Lakes on the north, for the railroads that traverse Ontario from Michigan to New York belong to it. Its southern limit follows a line from Norfolk to Louisville and St. Louis. Its western boundary, ignoring that geographical parvenu, the Upper Mississippi, runs from St. Louis to Peoria and Chicago, and thence northward to "The Soo." It is the territory of the Trunk Lines.

The two southern districts, coast and inland, stretch from the true Father of Waters, the venerable Lower Mississippi, to the ocean. The Alleghanies separate them in their northern portion, and further south their somewhat vague boundary would be approximately indicated by a line drawn from Chattanooga to New Orleans.

3. The Coast District we may regard as reaching north to the Potomac, perhaps even to Baltimore, (see line of dashes on the map). It thus overlaps the southern edge of the Trunk Line District. But its characteristic roads run nearly at right angles to the trunk lines themselves.

4. The Inland Southern District overlaps the west end of the Trunk Line District even more extensively. Indeed the great triangle between Chicago, St. Louis, and Cincinnati belongs to both. But here, as in the Coast District, the trunk lines and the southern roads run across one another.

5. Beyond the Trunk Line District, and extending on the west and south to the Missouri River, lies the rich section whose roads, radiating from Chicago, are appropriately called The Grangers.

6. West of the Mississippi and south of the Missouri, we find the region of the Southwestern Roads. Their centre of dispersion is St. Louis, and they extend towards, if not in all latitudes to, a line drawn from Kansas City to El Paso.

7. The Pacific roads claim the rest. Indeed they claim more, for their eastern portions reach across to New Orleans and St. Paul and Duluth, much as the Boston and Albany, now a part of the Vanderbilt trunk lines, penetrates New England. But their geographical character is impressed upon them by the Plains, the Rocky Mountains, and "the Coast," not by the prairie region from which they take their departure.

These districts are not in any sense traffic tight compartments of the ship of trade. The great doors between the East and the West at Chicago and St. Louis, between the North and the South at Baltimore and Cincinnati and Louisville, have no apparatus for automatic closing, even in the time of disaster. On the contrary,

transportation interests of each district perpetually reach out into neighboring districts, and, in consequence, the same road may come to serve more than one purpose. Many New Englanders, for example, are inclined to look upon the Boston and Albany as a local Massachusetts affair. And historically it is so, to some degree. But the rest of the country sees that it is functionally part of the Vanderbilt trunk lines, protruding, for trunk line reasons, as far as the port of Boston, and serving the New England district but incidentally. In like manner the Gould southwestern roads, when they come to be consolidated, will probably have their own outlet to the Great Lakes, via the Wabash, and may reach Pittsburg, or possibly even New York. Similar cases might be enumerated by the dozen. Nevertheless, the railroad system of each of the seven great districts is relatively independent. The traffic of each district is characterized by dominant features differing from those which dominate its neighbors. Each is big enough and rich enough to afford scope for a high degree of combinatory genius, and when combined, to give occupation to great administrative ability. And each is still so small that combination by lesser units cannot prove permanently effective.

Within these seven districts, then, the newer process of consolidation is going on. In some of them, it has progressed much further than in others. New England was the first to ripen; her area was small; her industrial conditions were settled. There were no new lands to be taken up, no coal or iron mines to be opened. Her water power was developed; her towns were located; her railway net was ample for her real needs, and an intelligent public opinion could be counted upon to oppose the building of new lines for purely speculative purposes. The factors with which the railroad financier must figure out the problem of consolidation, approached nearer than elsewhere to the desirable estate of known quantities. Here Division of the Field was practiced. Two strong companies extended their operated mileage bit by bit, until nearly the whole traffic of the district was parceled out between them. Eastern extensions of two trunk lines still cross their territory, reaching the Atlantic at

Boston and Portland. But the Grand Trunk, though in New England, is not of her, and the Boston and Albany serves, so far as traffic of the New England District is concerned, chiefly to mark off the domain of the New York, New Haven and Hartford in the south from the empire of the Boston and Maine in the north. Neither of these interfere in the field of the other. Not even the radiating railways of France, holding each its own wedge of territory, which broadens as it leaves Paris, can show a more perfect example of division of the field.

At the other end of the land essentially the same process, begun more recently, has been carried out with greater dash. Mr. James J. Hill, a man who unites shrewdness, force, and imagination in a degree unequalled even in American railway history since the death of Commodore Vanderbilt, has affiliated his Great Northern, built to bankrupt the Northern Pacific, to the Northern Pacific, which he acquired in bankruptcy. Merely to keep himself occupied, he bought Erie for less than its value under the very noses of eastern financiers, and is now making proposals¹ to the Boston owners of John Murray Forbes' Burlington and Quincy, while the Canadians accuse him of attempting to control their Pacific road as well. Meanwhile the Union Pacific has, within a year, acquired a controlling interest in its younger rival, the Southern Pacific, whose lines stretch from the Mississippi to the Columbia, and exercise autocratic control over the traffic of California. Thus the older road not only removes a dangerous competitor, but at the same time permanently secures itself a safe outlet from Ogden to San Francisco. Here we have, then, an incipient duplication, on a gigantic scale, of what had already happened in New England,—one combination controlling the northern, the other the southern half of the territory. Conditions, of course, are not the same. The Atchison still meanders independently across the continent, and a consolidation of Denver and Rio Grande with Missouri Pacific would go far towards constituting still another Pacific road. Much, therefore, remains to be done

(1) Middle of April.

in the western forty per cent of our national area. But the tendency of the recent consolidation in that district is plain enough.

In the Granger District the difficulties of effective combination are very great. There is a vast mileage and an enormous capitalization. The securities are held, in some cases, by tenacious investors. The conditions of traffic are extremely involved. There are six roads, or combinations of roads, between Chicago and Omaha, seven between Chicago and St. Paul, nine between Chicago and Kansas City. The situation is further complicated by the Chicago extension of the Atchison, which brought to that road such disastrous results, and by the possession of Chicago and Alton by interests whose purpose is not yet fully disclosed. Indeed, the nature of the future consolidation in this district is not, as yet, altogether apparent.

In the southwestern group the operative and financial problems, if not less intricate, are in any event less gigantic. Gould interests are supposed to dominate these roads, and the recent pyrotechnic advance of Missouri Pacific doubtless reflects a general expectation, perhaps not unfounded, that the near future will see extensive absorptions of southwestern properties by that road. But this is prophecy.

In the Inland Southern District the great system of the Illinois Central has long had the advantage of reaching Chicago over its own lines, while the friendly Louisville and Nashville, and until recently the Southern Railway, extended only to the Ohio. But the Southern, through its acquisition of Mobile and Ohio, has secured entrance into St. Louis from the south, and is bound to push on until, sooner or later (and probably soon), it shall control a line of its own to Chicago. When Louisville and Nashville does the same, and the Southern reaches New Orleans, the time for a wholesale combination in the fourth district will have arrived. We thus see that here also consolidation has still far to go. But compared with fifteen years ago the geographical conditions have already forced for themselves a surprising degree of recognition, even in Kentucky, Tennessee, and Alabama.

Within the third district, lying between the Alleghanies and

the sea, the Southern Railway has nearly realized the dream that inspired the organizer of the abortive Richmond Terminal System. Though it controls only about one third of the mileage in its district, the Southern, reaching the important points of the New South, is in a position to regard the Florida roads and the minor lines on the seaward fringe of its territory rather as its dependents than its rivals.

The Trunk Line District is the most important and not the least complicated of them all. It contains forty per cent of the population of the United States; and, with less than twenty-five per cent of the railroad mileage, it does almost fifty per cent of the freight business. On its western boundary, Chicago and St. Louis distribute the manufactures of the North Atlantic States and the imported goods which the railways bring from the seacoast, and collect and forward the produce of the prairies. At its eastern end, stretching from the Merrimac to the Potomac, lies a densely populated belt of counties, where, upon less than one two-hundredth of the area of the country, are crowded nearly one fifth of the total, and over one third of the urban, population. Midway of the district is the Pittsburg-Cleveland iron and steel region, the most productive in the world. Between this and the coast are "The Coalers" (2A of the map), which present an important local problem in consolidation taken by themselves.

For a long time "the four trunk lines,"—New York Central, Erie, Pennsylvania, and Baltimore and Ohio,—handled the vast east and west business of this section, with occasional interference from the Grand Trunk. The meteoric career of the West Shore ended in its absorption by the Central, and the Nickel Plate was similarly subdued. Subsequently the Chesapeake and Ohio, first under the Huntington régime, and afterwards in connection with the Big Four, entered the field of through traffic, and the Norfolk and Western, though it stopped short of the boundary of the district, proved itself a vigorous cutter of through rates. The efforts made to unify the traffic of this district epitomize the history of the earlier combinations. After the Cattle Evers's Pool had

taken care, in a highly reprehensible way, of a peculiarly troublesome sort of shipments, came the much objugated "Gentlemen's Agreement." Then the Joint Traffic Association established rates which were broken by the Central, and restored, broken by the West Shore, and again restored. The Association was nominally extinguished by the Interstate Commerce Act, but it was revived in November, 1895, only to be dissolved by the Supreme Court. Thus the roads, forbidden to agree, were forced to more intimate forms of combination. Experience had taught them that, in the face of business difficulties and legal obstacles, the Trunk Line District could not be controlled by any agreement of independent equals. Old methods, to be sure, were still pursued. Lake Shore and Michigan Southern on the west, and Boston and Albany on the east, were leased to the New York Central; and the same principle may still be extended to Big Four, and perhaps to other Vanderbilt properties in this district. But the significant fact was the introduction of a new principle, Community of Interest. Heretofore operating officials had agreed; now owners are seeking to fuse their interests. Pennsylvania has bought largely into Chesapeake and Ohio, where Central capitalists are already interested; and into Norfolk and Western. It has recently been announced that Pennsylvania owns over forty millions of Baltimore and Ohio, enough to give control; and the increase of Pennsylvania's capital by one hundred million dollars foreshadows further purchases of the same sort. It is supposed that the securities of even the Central have passed into the hands of the Pennsylvania group; Vanderbilt interests securing a block of Pennsylvania stock in exchange.

The minor but disturbing problem of the Coalers (2A of the map) has suffered a solution even more radical. Roads like the Lackawanna and the Lehigh, reaching from the Atlantic to Lake Erie, where they have water connection to the West, are by no means negligible factors in the general trunk line situation. But it is rather as miners and transporters of anthracite that they, like the other coalers, interest us here. The hard coal traffic has long been pooled; but the pool, in spite of the strangely restricted

occurrence of the coal, was never wholly successful. Independent mine owners were dissatisfied with the rates charged by the railroads (who were also miners) for hauling the independent coal, and threatened to build a road of their own. Established roads were unable,—or unwilling,—to control their selling agents; and thus a group of mining and transportation businesses possessing a high degree of geographical unity were being handled, at times very much to cross purposes. So Mr. Morgan stepped in. He bought in the open market a controlling interest in Jersey Central and sold it to Philadelphia and Reading, eliminating a notorious cutter. He secured for Erie the Pennsylvania Coal Company, and the threatened independent road to the Hudson collapsed. Meanwhile directors of these roads, and of Lackawanna have entered the Lehigh board, and the Delaware and Hudson is effectively controlled by similar methods. Agreement between different coalers has given way to community of all coaling interests.

This survey may serve to establish our thesis. There is a tendency towards consolidation, sometimes by absorption, sometimes by mere community of interests, which is now spreading itself over each of the great traffic districts. It promises to bring about, in fact, what pools have failed to accomplish. If it succeeds, it will profoundly modify the conditions under which American railways have been operated hitherto. Those conditions had already brought us, twenty years ago, probably the lowest freight rates in the world; and throughout the intervening period, while the charges of European railways have remained steady, our own have continued, until very recently, on their accustomed decline. No other fact in our railroad history is so broadly significant as this. No other result which may conceivably flow from community of railway interests can prove so important as would a reversal of the downward tendency of freight rates. In order to appreciate the meaning of such a reversal, and to gauge its probability, we must look, for a little, at the fall in rates that has taken place and at its causes.

Our present industrial structure has been built upon abundant

railways and upon cheap freights. Without these, the West would still be thinly settled, the East provincial. The westward movement of our frontier was not dependent, to be sure, upon the locomotive alone. Pioneer settlements had crept down the valley of the Ohio before a spike was driven in Maryland, and villages were beginning to fringe the Great Lakes when the first railroad from the East entered Chicago. But the surveyor and the construction gang had to provide means for moving farmers in, and farm products out, before a far greater movement of population could sweep across the prairies. At length its advancing waves, encountering, at the edge of the arid plains, an inland coast, were dashed back upon themselves. But the railroads pushed on. They crossed the Great American Desert, which has vanished from our patriotic maps, but not from the surface of the inconsiderate earth. They threaded canyons, they climbed passes, they linked Connecticut to California. Throughout the vast areas that they traversed, their rates have been the determining factor in the distribution of population and of business. They build up the Missouri River towns at the expense of those on the Mississippi; they establish this buyer of Dakota wheat or Iowa corn, and suppress that one; they shift the manufacture of flour from Rochester to Minneapolis, or of stoves from Troy to Detroit. More effectively than an imperial rescript

“Dey makes or dey breaks a man.”

And it must be admitted that, though they have incidentally broken here and there a man, on the whole they have made the country. The wheat fields have shifted from the Susquehanna and the Genesee to the Minnesota and the James. More cotton is now raised on the black prairies of Texas than on the red uplands of Georgia. But food and clothing still flow east in undiminished streams for the factory operative in New England and in old England; and the charge for transportation apparently makes no larger part of the cost of a wheaten loaf or a cotton shirt to-day than it did when Texas and Iowa were admitted to the Union.

The precise measure of the decline in freight rates has been a matter of much dispute. All figures based upon the published schedules ignore, of course, those special rates, rebates, and other discriminations, which, at times, have caused the rates actually paid to depart widely from those ostensibly demanded. This criticism is perhaps best met by turning to the actual freight receipts per ton-mile of traffic handled. We may thus take account of the effect of all irregular practices except the charging of rebates as operating expenses. Let us, then, bring the figures of freight receipts into juxtaposition with certain others, reducing them when necessary to gold values:—

Year.	Revenue per ton-mile from freight. Cents.	Change per cent.	Ton-miles per mile of road.	Change per cent.	Tons carried per mile run by freight trains.	Change per cent.
1867	1.925	100	279,712	100	867	100
1877	1.286	67	345,773	123	983	113
1887	.984	51	573,513	183	1,312	151
1897	.753	40	617,810	221	2,033	234

This table shows that, in the thirty years following the war, the receipts of our railroads from the ton-mile of freight service have fallen sixty per cent. It shows also that the proportion of freight handled to miles of road used has risen one hundred and twenty-one per cent, and that the paying weight in our freight trains has increased one hundred and thirty-four per cent. The dead weight has likewise increased, but not so much, —a fact which the table does not show. In other words, more weight is hauled per mile of road, and an increased proportion of the weight hauled is paying weight. It is further known, from sources into which we cannot here go, that many technical and administrative improvements have reduced the cost of haulage. Better road bed and better terminal facilities, block signals and

train brakes, larger cars and heavier engines, a thousand and one changes have promoted economy.

But such reductions in the cost of handling and hauling freight, while they may explain how the average charge could decline, do not explain why it did. Take another line of business. It presumably costs less to make a typewriter now than it did in 1885. But the price of standard machines is the same. The circumstances that, in the typewriter business, might have permitted a reduction of price, have produced instead, as it seems, an increase of profits. The circumstances that, in the railroad business, might have permitted an increase of profits, have produced instead a reduction of price. In one instance the owners of the business, in the other the users of its product, have reaped the benefit. It is common to explain this difference by asserting that the railway business is competitive, whereas the manufacturers of typewriters have a monopoly. This pseudo-explanation itself requires a good deal of explaining before we can say whether it is adequate or not. Let it be granted—provisionally—that freight rates are “fixed by competition.” It is equally true to assert that a Vauclain compound locomotive is driven by steam,—and equally superfluous. What we need to understand is the detail of design, the proportion of parts, the nice inter-adjustments whereby expansive power is utilized to the utmost in drawing the train. And regarding railroad competition, likewise, we need to know in detail how it works.

The historical development of our ideas regarding competition in transportation has led us to lay undue weight upon those sorts which are of trifling effect, and to overlook those sorts which are really dominant in the railway business. At first it was supposed that competition would regulate charges upon the iron highways as it had upon the highways of earth and the highways of water. The laws enacted for the familiar turnpikes with their coach lines, and the established canals with their packet companies, were assumed adequate for the new highways, upon each of which, it was fancied, several competing companies would place trains and offer transportation. Experience soon proved that

competitors could not use the same rails, and the operating of each road fell exclusively into the hands of one company, generally its owner. But the idea of competition was merely transferred from two trains on the same line to two trains on parallel lines. And even to-day it is but dimly realized, if at all, by most people, that there is almost never thoroughgoing competition in prices between two roads connecting, say, Factoryville and Jobbingtown. Those roads are pretty sure to be in a pool most of the time. It is the railroad that enters Jobbingtown from the other side, over which the manufacturers of Mill Village must ship their goods, that competes with both the roads that the Factoryville producer must use to reach the jobbers. Whether a grocer in Indianapolis buys canned goods from Baltimore, Md., or from Rome, N. Y., or from Milwaukee, Wis., is chiefly a matter of railroad freights. The same principle applies throughout each of the great trade districts. It was the possibility of playing off a road from Springfield to Boston against a road from Springfield to New York that forced rates down. Unless the Boston road enabled Boston importers to deliver goods in Springfield as cheap as New York importers could do, the New York drummer booked Springfield orders, and the New York road hauled Springfield tonnage. Or, in more general language, it was the competition of various producing and manufacturing points, each striving to extend its field of sales throughout the whole of the trade district accessible to it, that lowered rates, and not the competition of paralleling roads, one with another. It was primarily a question of alternative markets, not of alternative routes.

If this is a correct account of the way in which railroad rates in the United States came to fall more persistently, and far lower here than they have elsewhere, it seems that railroad combinations covering the great trade districts of the country and extending to all the avenues of approach from various producing regions to each of the principal towns in those districts, might be able to check the fall of rates, perhaps to advance them.

But, in fact, the difficulties in the way of a permanent advance of

rates, even in a well consolidated district, are not inconsiderable. They result, in the first place, from the rooted habits of our railway freight men, and from the imperfect control that the owners of the roads have of the actions of that class of employees. Grant, for the present, that it is easy for the general office to raise class rates on paper, and even easier to reclassify goods so that articles which used to go fourth class at sixteen cents are put in the third class at twenty; it does not follow that revenue from shipments of the article in question will increase proportionately. Local agents know a hundred devices of underweighing and false billing, difficult for the office to detect. And to raise rates is to tempt them strongly to put their knowledge into practice. For higher rates mean a shifting of traffic, and to allow traffic to shift away from his lines is contrary to all the lessons of the freight-man's life-long education in "getting tonnage" and "making a record." So far, therefore, as liberty is still left him, in law or in fact, the hustling freight solicitor of the Q. E. D. R. R., however busy his lines may be, will not allow tonnage to fall off for want of a reasonable concession. His motto is, "make rates to get business," and in slack times he is doubly active in holding traffic. It is, too, at least partly a matter of pride with him to show large shipments, and the consequent rivalry between the employees of different lines will not cease to show itself merely because the same names are written in a thick bunch of the stock certificates of each road. In the second place, since the present boom cannot last forever, there will still be roads here and there that look forward with apprehension to the next interest period, roads to which a present ten looks bigger than a future twenty. By such roads concessions will be made to large shippers with prompt cash.

The policy of Community of Interest, however, may be counted upon gradually to overcome both of these forces adverse to the advance of rates. As for the energetic traffic man, the liberty allowed him will be less—is, in fact, already less—than recently it was. And for transgressing his instructions he can be more effectively disciplined than heretofore, since the road

against which he has offended need no longer fear to reprove him, lest he transfer his hustling abilities to its willing rival. Meanwhile the new generation, as it comes on, will be educated in a stricter school. Weak roads, too, will be taken care of. By direct subvention, or, more probably, in the disguised form of a lease, the stronger lines will allow them, out of the receipts that steady rates afford, as much as they could obtain if forced to fight for it.

On the whole, then, it appears that Community of Interest may enable the affiliated roads, at least in years of general prosperity, to advance rates within the various districts as consolidation by trade areas proceeds. In periods of depression, however, the demand for reductions will be strong and persistent. It may not force recognition for itself in the old ways. But in some quarters it must be heard and heeded. If general freight agents are all obdurate, and the notorious cutters all absorbed, it may invoke the effective aid of railway commissions and state legislatures.

As to through rates, the conditions are somewhat different. Having built up a satisfactory class of long-distance shippers at its stations, a road may squeeze them sharply for a time, but only for a time. They can bear, as a rule, no higher rates than those to which they are accustomed. Double the freight upon export wheat, for example, and next year more acres will be sown in Cordoba and Bessarabia, fewer in Dakota. The reason we have already seen: it is another example of the rivalry between various producing points, lying in different districts and seeking to supply the same market. And in spite of picturesque talk about a Vanderbilt "transcontinental line from Hamburg to Hong Kong," it must be a long time still before consolidation will eliminate that sort of competition from the world at large.

In the light of these considerations, it is not difficult to guess at the probable effects of the new consolidations upon the financial position of American railroads. Consolidation, in and of itself, does not increase traffic. But it may enable the roads to raise rates within the consolidated districts, and if they do so,

they will presumably increase their net earnings. If, on the other hand, either in hope of avoiding legislative interference, or for the other reasons which have restrained some of the most successful industrial trusts from charging greatly advanced prices, the railroads shall decide to leave rates in general upon the present basis, there are still two main sources from which their net earnings may be expected gradually to increase. First, the roads, as a rule, will be able to reap the advantage of future economies, instead of handing that advantage over to the public, as in the past. Second, the country will gradually grow up to the railroads, and their net earnings will swell with the progress of the trade districts which they drain.



THE LITERATURE OF EXPANSION

CHARLES A. CONANT, *Boston.*

The recent appearance of the United States in the ranks of colonial powers, and the interest awakened in the opportunities for trade with undeveloped countries, have left their impress strongly upon current literature. A demand has sprung up for a knowledge of foreign countries, especially of their economic and colonial policies, which is bearing fruit in nearly every class of publications. From the newspapers the discussion of these new problems spread quickly to the weeklies and the monthly magazines, and thence has broadened into a flood of books which threatens to submerge even the most industrious student. It is not a new phenomenon that the awakening of an aggressive national spirit in the field of commerce and of arms, should be accompanied by a like awakening in the field of letters. The stimulus of eager ambitions, the struggle for supremacy on the battlefield and in the workshop, are sometimes suspected of absorbing the energy of a people in sordid things, at the expense of the finer achievements of the intellect; but at least a share of this vigorous national impulse is usually communicated to the few who labor in the higher realms of art and life. This was preëminently the case in the age of Augustus, when the success of the Roman arms on every field and the consciousness of the Roman citizen that he belonged to the greatest Empire in the world, awoke an outburst of literary genius second only to that witnessed under like conditions in Greece, the incomparable mother of philosophy and art. It was the same in the England of Elizabeth, and, to some extent, even in the France of a century ago, when the acclamations which accompanied the

triumphs of the armies of Napoleon seemed to kindle a divine flame around the cradles of Balzac, Chateaubriand, Michelet, Hugo, Lamartine, and the many others whose names have shed lustre on the literature of France in the nineteenth century.

The objection may be truly made to much recent writing on our new national problems that it falls far below the standard of permanent literature, or even of skilful handiwork. It cannot be denied, however, that a quickening has been given to literary activity which was lacking up to the outbreak of the Spanish War. For a few years, literature and life in the United States seemed to be growing sterile. Literature was becoming only the echo of an idle dilettantism, and even political life was degenerating into sham battles over issues which were personal or fictitious or of little real importance. But with the raising of vital new problems has come an overwhelming demand for information about the new dependencies, about the Orient, about trade conditions throughout the world, about the methods by which dependencies are governed, and about the ultimate ends of national life. All history has taken on a new meaning. The stories of Constantinople, of the Middle Ages, of the Italian cities, of the portentous rise of the Russian Empire, have become instinct with new life, since the light they shed on the economic struggle for the survival of the fittest has made them applicable to the modern contest for world markets and opportunities for investment.

Whatever criticism may be truthfully pronounced upon the new literature it is at least virile with the life of the times. A demand is growing up for literary men who are at the same time practical men,—for writers who can discuss living problems, instead of raking the smouldering ashes of dead literary controversies. Out of this awakened intellectual activity will undoubtedly come books worthy of the twentieth century, and conforming to the best models of classic art. Homer, Herodotus, Xenophon, wrote out of the fulness of the events of their time. If their work conforms to the highest canons of art, it is in a measure the unconscious conformity which comes from the inbred culture of their race. Conditions of artistic

production have changed much in modern times, and that literature is most likely to live which deals with living problems, rather than that which holds itself aloof, and seeks to make of letters a thing apart from life.

It would be futile to attempt within the limits of a brief article to review the flood of publications which has recently appeared regarding the conflict among the nations for commercial supremacy and its many-sided consequences. It is proper, however, that this writing should be recognized as a part of the literature of the day, and that the best should be singled out for recognition. Among the many serious and valuable publications called forth by the policy of expansion, all that can be done here is to designate a few of the best, or the most striking. One of the most intelligent studies of economic conditions and opportunities in the leading countries of the Orient is the book of M. Leroy-Beaulieu, "*La Rénovation de l'Asie.*" M. Leroy-Beaulieu is not the veteran economist of this name, but a younger relative, who bids fair to equal the distinguished editor of "*L'Économiste Français*," in the keenness and soundness of his observations, if not in speculation of the purely theoretical order. He has applied a trained eye and a well ordered mind to the investigation of those problems in China, Siberia, and Japan which really affect their economic life, instead of padding his pages with personal experiences. It is a source of congratulation for English readers, that his work has just been put into their language, under the title, "*The Awakening of the East.*"¹

Another admirable presentation of the broader aspects of the struggle for world power is the little book of Professor Paul S. Reinsch of the University of Wisconsin, "*World Politics.*"² It is much more orderly and less speculative than the much talked of

(1) *The Awakening of the East.* By Pierre Leroy-Beaulieu. Translated by Richard Davey. New York: McClure, Phillips and Co., 1900. 12mo., pp. xxvii, 297. Price, \$1.50.

(2) *World Politics at the End of the Nineteenth Century as Influenced by the Oriental Situation.* By Paul S. Reinsch. New York: The Macmillan Co., 1900. 12mo., pp. xviii, 366. Price, \$1.25.

work of Mr. Brooks Adams, "America's Economic Supremacy."¹ Mr. Adams has a fertile historical imagination, and a brilliant pen, which gives something of the same interest to this book that attached to his other excursion into the domain of racial development, "The Law of Civilization and Decay." Both books are worth reading because of their suggestiveness, but neither their facts nor conclusions can always be accepted without question. Another book which has many of the merits of that of M. Leroy-Beaulieu is the monograph of Mr. William Barclay Parsons, "An American Engineer in China."² He also deals chiefly with facts which it is vital for the exporter, economist, and statesman to know, rather than with the discursive, personal yarns of the amusement-seeking tourist. There has hardly been a book published which within such limited space and in such a modest manner has presented so much of real interest to the student of the future of China. An unassuming but valuable discussion of the situation in China may be found in the little pamphlet, "The Expansion of Trade in China,"³ containing the address of Mr. T. H. Whitehead of Hongkong before the Liverpool Chamber of Commerce in February last. Mr. Whitehead speaks with exact knowledge of the temper of Chinese merchants, the concessions which have been wrung from the government, and the manner in which they have been rendered inoperative by corrupt and hostile Chinese officials.

Among observers on the ground, Mr. Archibald R. Colquhoun has done much valuable work. Some of his earlier books, like "China in Transformation," are perhaps a little more carefully wrought than those which have been called forth by the crisis of the past year; but Mr. Colquhoun possesses such a fund of solid

(1) *America's Economic Supremacy*. By Brooks Adams. New York: The Macmillan Co., 1900. 12mo., pp. ix, 222. Price, \$1.25.

(2) *An American Engineer in China*. By William Barclay Parsons. New York: McClure, Phillips and Co., 1900. 12mo., pp. 321. Illustrated. Price, \$1.50.

(3) *The Expansion of Trade in China*. By T. H. Whitehead. London: Effingham, Wilson and Co., 1901.

information and experience, which he brings to bear upon the character of the Oriental peoples, that anything which he writes can hardly fail to be of interest. One of his latest books, "*Overland to China*,"¹ deals with the results of the completion of the Trans-Siberian Railway, not only upon Russia and Northern China, but upon French interests in Indo-China, British interests in India, and the share of Japan in the solution of these problems. Mr. Rounseville Wildman, whose untimely death, almost in sight of his native land, a few weeks ago, excited so much sympathy, also had the advantage of close personal observation of the Chinese people. He spent many years as Consul-General of the United States at Hongkong, and his book, "*China's Open Door*,"² throws a strong light upon the true reading of Chinese history and its relation to recent events. A book of a slightly different character, but one which has proved among the most popular works of the season at the libraries and bookstores, is "*China, the Long-Lived Empire*,"³ by Miss Eliza R. Scidmore. The writer has been seven times in China, within fifteen years, and has divined, with a woman's intuition, many of the characteristics of the people which have escaped the duller observations of her male rivals.

Books regarding the Philippines have long surpassed the digestive capacity of the most interested reader. One of the latest and best of these is from the keen-eyed, courageous, and truth-telling representative of the "*New York Evening Post*," Mr. Albert G. Robinson, who has brought his interesting letters together, in revised form, under the title, "*The Philippines: the*

(1) *Overland to China*. By Archibald R. Colquhoun. New York: Harper and Brothers, 1900. 8vo., pp. xii, 465. Illustrated. Price, \$3.00.

(2) *China's Open Door: A Sketch of Chinese Life and History*. By Rounseville Wildman. Boston: Lothrop Publishing Co., 1900. 12mo., pp. xiv, 318. Illustrated. Price, \$1.50.

(3) *China, the Long-Lived Empire*. By Eliza Ruhamah Scidmore. New York: The Century Co., 1900. 8vo., pp. xv, 466. Illustrated. Price, \$2.50.

War and the People."¹ The war in South Africa, with its political and economic issues, has also been the source of a flood of books, most of them going much more into petty local questions than is likely to be acceptable to the general reader in America. For accuracy of observation and depth of penetration, and at the same time for charm of style, minor writers must almost inevitably give way to Professor James Bryce, the author of "The American Commonwealth." His new book, "Impressions of South Africa,"² which has already passed through a third edition, has a strong claim to the praise bestowed upon it by a favorable critic, namely, that it is "the strongest, the sanest, the completest" account of the South African situation which has been produced.

The exercise of British authority in Egypt is a subject of keen interest to Americans, now that they are called upon to play a similar part in Cuba, and the subject is well discussed in "Present Day Egypt." The author is Mr. Frederick C. Penfield, who was United States Consul-General at Cairo, from 1893 to 1897. There is, perhaps, no country in the world where so much benefit has come to the people through the control of a powerful civilized State as is the case with Egypt under British rule. The manner of this control, its benefits to the lowest classes in reducing taxation and enabling them to enjoy in peace and security the fruits of their labor, and its remarkable financial results form an object lesson which should be studied and emulated, if Americans desire to succeed in like manner in the Philippines and the West Indies. The government of a dependency of alien race and traditions, and with habits formed under the conditions of the tropics, is no holiday task, to be solved by Yankee bustle or shrewdness. It requires study and training, and books based upon the experience of other nations in

(1) *The Philippines: The War and the People: A Record of Personal Observations and Experiences.* By Albert G. Robinson. New York: McClure, Phillips and Co., 1901. 8vo., pp. 407. Price, \$2.00.

(2) *Impressions of South Africa.* By James Bryce. Third Edition. New York: The Century Co., 1900. 12mo., pp. 580. Price, \$3.50.

dealing with such problems ought to be studied by Americans with all humility and prayerfulness. From this point of view, there is value in the two volumes of Mr. Henry C. Morris on "The History of Colonization."¹ Mr. Morris has brought together a great mass of interesting facts, and it is to be regretted that they are not a little better digested and coördinated.

Many of the best discussions of the new policy of the United States and its real meaning have appeared in the economic quarterlies, which unfortunately do not reach all the readers of the popular magazines. Professor F. H. Giddings has embodied some of his articles in a valuable book called "Democracy and Empire,"² in which he endeavors to reconcile, in a broadly philosophic spirit, the democratic form of our government with the achievement of world power. Among the best of the single articles which have not appeared in book form are those of Professor Edward V. D. Robinson, in the "Political Science Quarterly" for December last, entitled "War and Economics." Professor Robinson seeks to show that wars, instead of being sporadic outbursts of personal passion, have had their root, in the great majority of cases, in underlying economic conflicts between races, and that the present struggle for markets in Africa and the Orient is only a phase of the same great contest for economic survival. Another valuable collection of essays on all branches of our colonial problems is contained in the supplement to the "Annals of the American Academy of Political and Social Science" for May, 1899, on "The Foreign Policy of the United States."

The quality of official publications seems to have felt the quickening influence of new conditions in a high degree. It is, perhaps, something more than a coincidence that the two powers

(1) *The History of Colonization from the Earliest Times to the Present Day.* By Henry C. Morris. London and New York: The Macmillan Co., 1900. 2 vols.; 8vo., pp. xxiv, 459; xiii, 383. Price, \$4.00.

(2) *Democracy and Empire; With Studies of Their Psychological, Economic, and Moral Foundations.* By F. H. Giddings. New York: The Macmillan Co., 1900. 8vo., pp. x, 363. Price, \$2.50.

which have been the last to enter the circle of competitors for commercial and political supremacy,—Russia and Japan,—issue publications regarding their economic progress which are among the best. The Russian Journal known as the “Bulletin Russe de Statistique” was issued for several years at St. Petersburg in French, before it was supplemented, in 1900, by the English form, “The Russian Journal of Financial Statistics.” The last issue of the latter, for the year 1901, is surprisingly complete in the mass of information given regarding economic progress in Russia. As the government holds in its hands the threads of railway management and the monopoly of the production of alcohol and several other industries, and keeps a central record of joint stock issues on the Russian market and for Russian enterprises, the statistics regarding incorporations, earnings, railway progress, and many other industrial details are accessible and complete. The entire progress of the Russian monetary reform, by which the Finance Minister, M. de Witte, sought to invite foreign capital into Russia, has been set forth in these publications, and illustrates one of the most systematic and successful monetary measures of recent times. The Japanese statistical abstract gives many similar figures for Japan, but in a compact form, and with less explanatory matter than does the Russian publication.

Among American public documents, the reports of the two Philippine Commissions will repay careful study. The first report, by President Schurman and his associates, was a strong and well reasoned document, but was necessarily less complete and deliberate than the report since received from Judge Taft. Scant justice has been done to this paper in the daily press, owing to the bureaucratic methods of government officers in throwing a big volume at the head of the public at one time, instead of distributing the publication of the best portions through the newspapers, at reasonable intervals. The report of Judge Taft, without the elaborate exhibits, fills more than one hundred pages of close official print, and deals with nearly all the varied topics affecting the progress of the Philippines. There is still room for more elaborate examination by experts of some of the ques-

tions of taxation, money, and the development of industrial opportunities; but the report of Judge Taft and his associates, expressed in clear language and logically arranged, will form the basis of public information and official action, until special investigations can be completed.

It is gratifying to learn that the government of the United States contemplates the preparation of a statistical abstract of foreign nations. Such an abstract would naturally embody the cream of the matter contained in all the foreign abstracts. It would place within easy reach of American merchants and students the essential facts regarding the development of other countries, about which so much self-satisfied ignorance has prevailed down to a recent date. There has been a marked improvement, within the last few years, in the quality and interest of the reports made by United States Consuls to the Department of State. Promptness of publication and careful editing have become features of these reports since they were taken in charge by Mr. Frederic Emory, of the Bureau of Foreign Commerce; but their added interest is derived perhaps in part from the fact, that all the nations are awakening to the severity of the industrial competition of the time. It naturally follows that what relates to the measures they have taken to protect and extend national interests should especially engage the attention of Americans.

TWO WORKS ON DECORATIVE ART

RUSSELL STURGIS, *New York.*

The winter of 1900-1901 was marked by the appearance of important books on subjects connected with the fine arts; and some of these books deal with matters little understood, hard for various reasons to study aright, and hitherto wholly out of the reach of all those persons who cannot give their whole time to the study in question. And first as to Japanese art concerning which Mr. La Farge's paper in the May number of this periodical gives the latest word of artistic sympathy, as felt by the more serious students of art in the Western world. To the general treatise upon which that article was based, succeeds the minute and highly specialized book lately published by the Boston Museum of Fine Arts.¹ It is the work of a man primarily not a student of art, but a scientific investigator, who was drawn to the study of Japanese pottery because of its ineffable charm. He traveled through many regions of the Empire; he studied the pottery work done in the villages; he registered for his own guidance the furnaces and the workshops; he became versed, at least as a theoretical student, in the processes employed, and in the systems of decoration; and he brought to America a great collection, which has been steadily growing ever since. When this became the property of the Boston Museum, Mr. Morse's study of it was continued with even greater zest than before; he originated and carried out the most elaborate card catalogue that ever was applied to such a purpose, and it is the reissue of that

(1) *Catalogue of the Morse Collection of Japanese Art.* By Edward S. Morse, Keeper of the Japanese Pottery. Boston: 1901.

catalogue which we have in the volume before us,—a beautiful book, in quarto, grave and dignified to behold, and light in the hand.

To the Western student of many arts, and of many epochs of art, the wonderful artistic life of the Japanese appears in two principal forms. There is, first, the highly wrought system of design by which wooden framing of a simple kind is turned into an elaborate and subtle architecture; by which many parts of that architecture within and without are invested with the most elaborate and closely packed decoration; by which vessels, utensils, furniture, dress, and objects of ceremony are treated with a surface adornment as full of incident and significance, and as rich in color and the skilled use of brilliant materials as any known to history;—and there is beside this, and existing contemporaneously through many generations past, a marvellous power and good taste in handling very simple objects, so that their very simplicity, even their rudeness, has an irresistible charm. Now, the pottery of Japan takes generally this second form. Japan is, as the preface of this book has it, “the greatest pottery-producing country in the world,” and nine tenths of its vast output is devoid of those decorative additions which are usually, and in most regions of the earth, the common means employed for beautifying such wares. Good taste in form and in color rules; the brutal ugliness of most Western productions of the kind is unknown, (we are considering *not* the pieces made expressly for exportation to the West,) but among a thousand pieces not one will have painted decoration carried beyond a single spray of leaf or blossom, very slightly and sweepingly painted on, nor any attention given to its form beyond that of pressing and pinching the ductile clay into an amusing, a novel, a spirited deviation from a common, rounded shape, as of bowl or saucer. The day before this article was written, the writer saw in one shop in New York—and that not the largest Japanese emporium—between four hundred and five hundred pieces, bowls, bottles, cylindrical jars, saucers, dishes, cups, filling shelves and tables of two large rooms, and not deviating in a single instance from the

attempted description given here. You make on the wheel a bowl with sides nearly upright and higher than usual; you pinch that bowl exactly as the Greco-Roman glass-makers used to pinch their drinking glasses; and, into the depressions so made, you squeeze a little pellet of clay, which you model into a rough semblance of a leaf; this cup you fire, and it comes out hard and well baked pottery. Then you take a little of the semi-liquid glaze, using that which is of a different color from the body of your bowl, and you sweep it around the lip with a swift stroke of the full brush, so that it begins to stream slowly down the upright sides of the bowl. At the right moment, you fire it a second time, and the piece is complete; much of its completeness to the artist's eye being due to happy accident, (and he can break the cup if he does not like the results of his accident,) and much to the twist of the hand and pressure of the fingers,—the work of the trained human organism, unconscious of direct mental direction.

Another cup will be made attractive by a little painting, half representative, half purely decorative in character, and this cup will have been left smooth and more regular in form. On a jar, No. 2239 of the Morse collection, is a suggestion of a rolling sea, with the crest of the wave blown off by the wind; and it appears that you can count the brush strokes,—nineteen in the great rollers, and thirty or thereabouts, smaller and shorter, going to the "white caps" and the flying pellets of foam. To the Japanese ceramic painter, inheriting ancestral skill, surrounded by others as skilful as he, practicing a recognized and honorable art, accustomed, moreover, to put down quickly what he has quickly chosen from his mental or visual stock in trade, such a sketch as this is the matter of one minute,—of sixty seconds by time test. And perhaps two minutes have gone to the actual throwing of the piece on the wheel, the altering of its shape a little, and the setting of it up to dry.

Now, it is evident that to some students of decorative art these pieces, with all their undeniable attractiveness, will fail to secure the closest attention and the most devoted study. To one

who is primarily a student of fine art, and not of keramics, nor yet of sociology, the highly wrought ornamentation will always carry it over this slight, swift, and cursory work of even the most highly trained race of artists which we know in the modern world. To paint—

“ As a cunning workman in Pekin,
Pricks with vermilion some clear porcelain vase,
An emperor's gift—at early morn he paints,
And all day long, and, when night comes, the lamp
Lights up his studious forehead and thin hands ”—

to work thus is to be a keramic artist indeed; and the result of even a less strenuous and long continued labor than the poet's imaginings have made it, is that which the lover of Oriental art really adores, and would possess at the cost of some discomfort and of many reproaches aimed at his “extravagance.” Japanese keramic painting is less minute and delicate than Chinese, but it is as often full of artistic truth, and is more often vigorous, producing much effect with small means. Let one who is willing to spend much time and thought in procuring but few precious objects set himself to gather the more elaborate pieces of Japanese painted ware, and he will be happy enough in the result. Something of that variety and skill in adapting ornament to surface and to purposes which the lacquer artists show, will be found to exist also among the keramists of the Island Empire; and it must be insisted on that students with these tastes have as good a right to be happy as those persons who have been delighted, perhaps overmuch, with the essential Japanese peculiarity of sagacious treatment of a small and inexpensive object, which a touch or two makes into a work of refinement.

So much being said in behalf of another school of decoration, it may now be urged, with less reserve, that this Morse collection is the very central and principal gathering for this Western world of the rougher potteries; the swiftly modeled and dexterously painted works of the trained hand and practiced eye, working at the dictates of the most perfect good taste, but stopping short of elaboration. It is all there: the index of separate potteries

reaches five hundred ; the index of potters' marks is more than twice as long, and there are sixty provinces of Japan represented. The number of pieces in the Catalogue reaches five thousand three hundred and twenty-four. Every piece is given in one of the photographs of the open cases, and again in the outline sketch to which the Catalogue number is appended ; and nearly every piece is described in the printed Catalogue itself. There are, besides, twenty-eight plates, in each of which a few pieces are given on a much larger scale. This is one of the most perfect pieces of catalogue making, and one of the most scientific, and also sumptuous, renderings of a collection, of all those which the museums of the world have so far produced.

Now, to turn to the art of the nearer East, Mr. Mumford's book on Oriental rugs¹ is as novel a departure as the Morse Catalogue. There are plenty of big books and little books, costly folios and little manuals, in which Oriental rugs are treated as the principal, or as an important, subject ; but this is probably the first in which the subject is presented in such a way that any one should care to read the text. Yes ; that is the distinction : the other books are picture books, and plenty of ideas are to be got from their colored or photographic illustrations ; but descriptive and critical aid has been wanting, nor has geographical or technical information been given beyond the merest hints of what has been evidently very slightly understood, or slightly esteemed, by the writer. The country where the best rugs are made is thinly settled ; the means of communication are poor ; the villages are so small that a single dealer may get control of all the workmen in a village ; and out of this scattered and self-unconscious populace no word of information comes.

The owner of a few fine old rugs may have occasion, now and then, to call in some one to repair, or even to clean, this or

(1) *Oriental Rugs*. By John Kimberly Mumford. New York: Charles Scribners' Sons, 1900. 8vo., pp. xv, 278. Illustrated. Price, \$7.50.

that among them, and he may readily find this expert to be undoubtedly an Oriental; a Levantine, or even a Persian,—an Armenian very probably;—and he may find that this man is able to point out a vast number of curious facts in the design of his carpets, which he, the owner, has scarcely noticed, or has hardly thought important. A wilderness of new ideas may be presented him on each of these occasions; and even that is useful and important. Moreover, the supposed expert will be full of geographical names, and will ascribe the different rugs to their different regions with confidence—sometimes, with real or feigned hesitation, urging the rarity of the combination before him, of the pattern of one district with the weave of another. The same thing will have delighted the student of Oriental decorative porcelain and pottery; his vase of Satsuma clay, decorated with Kaga painting, and the like. The arts of the nearer East have been treated, indeed, with much sincere admiration and some sustained thought by competent writers; but this treatment has been rather in the form of essays on the general subject,—on the system of design pursued in Persia, Syria, or Egypt. Nowhere is to be found any serious attempt to do for Western Asia that which has been so much done for Europe, namely, the geographical analysis of decorative art. We know that German art differs widely from Italian and from French, and we know north German from south German decoration or painting; we know even the Munich and Nuremberg styles from one another, although the towns are near neighbors. But no one has tried to explain the essential difference, and the essential resemblance, between Rhodian and Anatolian pottery, Persian and Tartar weaving, the copper vessels of Damascus and of Busra. It is true that all these regions are, and have been, since archæological and critical research began, under the most sombre cloud of maladministration, bad policing, misgovernment in general; and that the modern industries of the time—most of them—are the faintest echoes of the past. That which was less admirable in the old work, its coarseness of fibre, its impatient neglect of detail, its ill-fitting joints, its contentment with unorganized

parts and incomplete finish, its slovenly embossing, ill-set stones, trivial drawing and quaintness replacing power,—all this remains; but the splendid decorative power of the old designer, seen plainly through his slovenly work, has gone, apparently forever. With hardly an exception, all that was fine has gone out of the art of Western Asia, and the pieces which can still be gathered—giving us our knowledge of what the art of the Moslem nations was in its prime—are generally difficult to date, and are always difficult to place geographically. One exception there is, as has been suggested. The weaving of the rug for the sand floor of the tent, or for the inlaid pavement of an Indian prince, has still remained a living art, and an art sufficiently perfect on its industrial side, and so much the superior of other kindred arts on its decorative and expressional side, that it is our standard with which those other arts are compared. There have never been any “carpets,” large or small, thick or thin, for floors or for tent curtains, at all comparable to those which have been made in different parts of the region which contains eastern Asia Minor, northern Persia, and southern Tartary; except that in the northwest of Hindostan, what seems to be an extension of this semi-national faculty is possessed by a race separated geographically from the true home of the carpet, Persia, by the howling waste of Afghanistan. Will it be found hereafter that in the villages of Afghanistan there was once a carpet weaving industry of importance? In Beloochistan (which no one seems to know anything about) the rug industry is still kept up; and what purport to be Afghan rugs still come to us. Will it be shown in this way that there has never been but one region where the carpet has been rightly understood, and that the modern ruin of Afghanistan by intestine quarrels has cut that anciently united region of industrial art into two separate districts?

Very sagacious writers, and some whose works embody the latest research, hold that all the arts of the East originated in Persia, except indeed the art of the Chinese, with its offshoots; and that even this has been always much affected by Persian design. There is an interesting controversy as to the origin of the

Moslem styles of architecture, Damascene, Cairene, Moorish in North Africa, and Moorish in Spain—whether those styles of building are the immediate result of the employment of Byzantine workmen by Arab conquerors, or whether Persia, once that state was conquered by the Arabs, began to spread her powerful artistic influence over the whole Moslem world. And the reason for these lofty claims on behalf of Persia's right to be first in the world of art, is the evident mastery of the people living there over many of the most beautiful and many of the rarest methods of design. From the time of Xerxes through all ages of the world, the Persian artist has been the greatest master known of pure color decoration; that is, of abstract designing in harmonious colors,—of their use as flat tints in contrast, their use in delicate gradation. From the earliest times, the Persian has been the only artist who knew how to design a flower,—a blossom which no man had ever seen or dreamed of but which he knew how to compose; and from the earliest times the Persian has been the undisputed master of those who would use elaborate and beautiful patterns in spite of restraining difficulties of mechanism. Therefore the Persian has always shown the way in the delicate and difficult task of making carpets rich in color and complex in design. Even if we find many of the pieces of undoubted Persian make too crowded with details and too sophisticated,—that is to say, too artificial, and with not enough natural impulse of the workman following traditional patterns, but still free to act,—we have still to admit the origin in Persia of all the lovely and powerful styles, freer and more severe, with which Western Asia is filled.

In Chapter VI. of Mr. Mumford's book, these very difficult subjects are treated in an interesting way. There is indeed a certain inadequacy in the discussion of that important question, the relation between the rug industry and Eastern fine art. The astonishing ascription to Sir George Birdwood of some knowledge of Oriental design, the still more astonishing deference paid to Owen Jones, and the curious abandonment of several pages to the quite irrelevant question of the "swastika," seem to mark

the beginner in art study. But the book is full of the most evident good faith, of the clear record of travel and abundant study on the spot, of cautious study given to the dyes, the patterns, the weaver's art, and the geographical distribution of those colors, patterns, and processes, which vary with the province or the village.

The book contains sixteen colored plates, each devoted to a single rug, eight photogravure ("artotype") plates, also devoted to one rug apiece, and eight half-tone prints, representing rug weavers at work, or other manifestations of the industry. The color-plates are of peculiar excellence. It is the commencement of our much needed shelf-full of books of reference concerning the decorative arts of the nearer East.

UP FROM SLAVERY¹

MR. BOOKER T. WASHINGTON'S AUTOBIOGRAPHY

HARRY THURSTON PECK, *New York.*

Washington Irving, in speaking of the praise which his earliest books received in England, used to complain that he never could determine, with any degree of accuracy, how much of this praise was prompted by a feeling of surprise at the discovery that an American was capable of writing correct and idiomatic English. At that time the British conception of an American, if it did not actually represent him as a red man, did at least favor the notion that he was a semi-savage, speaking a strange dialect and utterly ignorant of all the arts. Hence it was, that Irving could never quite make out whether his own writings were judged in England according to a standard that was absolute, or by a standard that was purely comparative.

The same question arises in one's mind on taking up the consideration of Mr. Booker T. Washington's personality, his achievements, and his reputation. At the present time he is universally recognized as the foremost representative of his race. He is eagerly sought after as a speaker. Whatever he chooses to write immediately finds a willing publisher. Newspaper eulogy declares him to be a remarkable orator. He is often spoken of as a man of solid and even brilliant intellectual attainments. How much of all this vogue and of this unusual reputation is based upon the fact that he is a negro, and how much upon his native merit, when weighed and judged without regard to any other consideration whatsoever? Has he, in fact, done that

(1) *Up from Slavery. An Autobiography.* By Booker T. Washington. With portrait. New York : Doubleday, Page and Company. \$1.50.

which, had he been a white man, would have given him a solid and substantial claim to the esteem that he now enjoys?

First of all, it may be said with confidence that a certain amount of what is said and thought of him by the general public must be set down as scarcely warranted by actual fact. An impartial examination of his speeches will show that he is not in any sense of the word an orator. It will disclose also the fact that what he writes is written simply, sensibly, and unpretentiously, but without any especial claim to literary merit. There is no evidence that his mind is in any way exceptional. So far as these things go, were he a white man, he never would be singled out for eminence. In making, however, this reservation with regard to Mr. Washington, we do not, in reality, belittle him or minimize the value of that on which his reputation ought to rest, but rather enhance and augment that reputation by bringing it out into clear relief. He is not an orator; he is not a writer; he is not a thinker. He is something more than these. He is the man who comes at the psychological moment and does the thing which is waiting to be done, and which no one else has yet accomplished. All the honor that is paid to Mr. Washington is really due to just one thing,—to the fact that by his special knowledge, by his special training, and by his possession of unusual sanity and common sense, he seems to have hit upon and, in some degree, already to have demonstrated a practical solution of the race problem, which now for nearly forty years has seemed to the American people, and especially to the people of the South, insoluble.

Every thoughtful man has often wondered what would ultimately happen in the Southern States under the conditions that have existed there since the close of the Civil War. An immense black population, increasing steadily, and in certain districts, far outnumbering the whites; a population almost wholly ignorant and superstitious, and with many degrading traces of its former servitude still clinging to it, a population also theoretically endowed with the same political rights that every American possesses; a population too that has memories of those shocking

years when the black man did for a time actually rule the whites, and gave to them the spectacle of a political debauchery and a social chaos so monstrous as to be recalled with shuddering; and, side by side with this population, some millions of whites, proud, high-spirited, and rejecting with passionate indignation the slightest hint of negro equality, either social or political. Such has been the situation in the South for many years; and in spite of every effort, it had seemed as though there were no possible way by which these two antagonistic elements could ever be so far reconciled and brought to work in harmony with one another as to assure to the body politic tranquility through the elimination of the race question, and at the same time to unite the white man and the black man in the effective development of all that makes for progress, material prosperity, and the higher civilization.

Fortunately there were some elements in the situation which might have justified a feeling of hopefulness, if not of optimism. The Southern white inherited, along with other and less agreeable traditions of the days of slavery, a kindly feeling toward the negro so long as the negro confined himself to the sphere for which he seemed to be adapted. The negro who was docile, sober, industrious, and saving, who did not believe that the mere possession of freedom entitled him at once to become a theologian, or an artist, or an orator, or a political leader,—the negro of this type has had no truer friends than can be found among the ruling classes of Southern whites. Again, there are certain natural attributes of the negro which are very admirable. He responds readily to kindness; he is faithful to those who show him that they are his friends; he respects the intelligence and the capacity of the white man; and he inherits the tradition of obedience to the ruling race. Left to himself by those who do not understand him, he would never have incurred the hatred that has at times been visited upon him through the mischief-making interference of Northern men and women who, sometimes with the best intentions, and sometimes with the worst, have most foolishly played upon his simple vanity, and therefore brought upon him the distrust and the dislike of the whites, who know

alike his qualities and his limitations. Given these two factors, however,—a willingness on the part of the white population to accept the black man in the sphere of manual labor, and the natural proneness of the black man to accept the guidance and direction of his superiors,—and it might have been recognized, long ago, that the difficulties of the problem were not in reality insurmountable. No one, however, actually did recognize this until Mr. Washington's strong common sense was brought to bear upon the question. The book before us is at once a record of his own career and an exposition of the way in which he has begun a task which, if carried out with the same success that has signalized the years of its inception, will give to Mr. Washington high rank among the benefactors of his country.

Born a slave some forty years ago; not knowing even the date of his birth or the identity of his own father; living throughout his early childhood in a wretched cabin where he shivered with cold in winter and stifled with heat in summer; sleeping on filthy rags, and never knowing anything but unremitting toil,—the beginning of his life could not have been less promising. Until well grown, he never ate at a table, or clothed himself in anything but rough flax shirts and rags and wooden shoes. The Civil War gave him freedom and the right to the enjoyment of his own earnings. Though a mere child, he went to work in a salt-mine, beginning each day at four o'clock in the morning, and laboring hard till night. One of Noah Webster's old blue spelling-books which came into his hands inspired him with a desire to go to school; and the rudiments of his education were derived by him from the instruction of a young colored man from Ohio, who had been a soldier, and who went from cabin to cabin, spending a day with each family and teaching in this peripatetic way. Later, young Washington entered the Hampton Institute, and later still (in 1878), he carried on his studies in the city of Washington. His public life began when in that same year he was invited by a committee of white men in Charleston, West Virginia, to canvass the State on behalf of a movement to make that city the capital. The impression that he made by his sen-

sible, straightforward addresses soon gave to him a reputation that was more than local, and he won friends whose influence was of value to him in his career as a teacher at Tuskegee. Every one is familiar with what Mr. Washington has done in that place, which has now become a centre of influence for the negro race throughout the United States. From the very first, Mr. Washington recognized the fact that the negro could not be trained and taught and take any definite place in the community of which he is a part, unless he could secure the friendship and avoid the prejudice of the whites. Throughout his whole career, Mr. Washington has shown consummate tact in the development of this principle. When he founded his school at Tuskegee, he resolved that it should not be an alien institution, but one in which the whites should have an equal interest with the negroes; not "a foreign institution" dropped down in the midst of the people, for which they had no responsibility, and in which they had no interest. I noticed that the very fact that they had been asked to contribute toward the purchase of the land made them begin to feel as if it was going to be their school. I noted that just in proportion as we made the white people feel that the institution was a part of the life of the community, and that while we wanted to make friends in Boston, we also wanted to make white friends in Tuskegee, their attitude toward the school became favorable." Mr. Washington brought out this same principle very forcibly in his rather famous address at the Atlanta Exposition, when he held his hand above his head, with its fingers spread apart, and said, "In all things that are purely social we can be as separate as the fingers, yet one as the hand in all things essential to mutual progress."

The second principle upon which Mr. Washington's work is based is the principle that for a long time yet the negro must be content with small things, that he must be patient, that he must not attempt too much, and that he should seek the advice and guidance of his white neighbors, not only with regard to his material interests, but with regard also to his political associations. "I think," he says, "that it is the duty of the negro to deport

himself modestly in regard to political claims, depending upon the slow but sure influences that proceed from the possession of property, intelligence, and high character, for the full recognition of his political rights. I think that the according of the full exercise of political right is going to be a matter of natural, slow growth, not an over-night, gourd-vine affair." Finally, Mr. Washington both preaches and teaches that, at the present time, industrial education is the negro's greatest need. He has no sympathy with any attempt to create artificially the so-called "educated negro," who lives by his wits, but rather the skilled artisan, the man who can do something that is needed to be done, and do it well. "I have found that it is the visible, the tangible, that goes a long way in softening prejudices. The actual sight of a first-class house that a negro has built is ten times more potent than pages of discussion about a house that he ought to build, or perhaps could build."

Mr. Washington's autobiography is extremely interesting. It is told with discretion, with simplicity, and with perfect taste and tact. If he quotes a good many of the numerous tributes that have been paid him, it is not because of any personal vanity; but it is rather to show what things are possible to any man of his own race, who, like himself, combines intelligence and industry and perseverance and common sense. There is something altogether pardonable, too, in the pride with which he tells how the man whose memory goes back to the time when he was a nameless slave, crouching in a filthy cabin, came to be the friend of presidents and statesmen, to receive high honors from the oldest university in the land, and to be the guest of peers and peeresses of England. We thought that we had detected a little touch of crudity in the dedication of the book to his wife and brother, to whose names he has prefixed, respectively, the titles "Mrs." and "Mr."; but we understood it fully when we came to that part of his narrative where he tells how many persons on meeting him have said that he is the first negro whom they had ever addressed with the prefix "Mr." We then saw that these courtesy-titles in his dedication were to him an expression of a

great fact,—that he and his had won a place and an esteem that are significant of much in the development of his people. Even his writing of “negro” with a capital is pardonable; for it shows that he wishes the distinction between his people and the whites to be regarded as an ethnic distinction, and therefore a distinction to be respected. One lays the book down with a feeling that is more than a mere personal opinion with regard to Mr. Washington himself. One draws from it a firm conviction that herein are shown, in concrete form, those influences which, if fostered and encouraged, will ultimately remove from American life, in its larger sense, a source of danger and of bitterness that now remain the only painful heritage of that great convulsion which at first disrupted and then unified forever the American Republic.



INDEX.

NOTE: The first word of titles of essays and of works noticed are italicised.

- Agricultural wealth of France**, 254.
Albumen, ratio of, in different foods, 575.
 its value, 577.
 insufficient supply of, 580.
 artificial supply, 582.
Alcohol, food value of, 689.
Alcoholism in Russia, 364.
America, from a German point of view, 607.
American Interests in the Orient, by Chas. A. Conant, 117.
American Woman, The, by Hugo Münsterberg, 607.
Antoine, M., and the Théâtre Libre, by A. Ferdinand Herold, 511.
Architect, The, in America, 237.
Architecture, Russian, 399.
Army, U. S., *See* West Point.
 officers, U. S., their parentage, 415;
 occupations after retirement, 417.
Art, Decorative, Two Works on, by Russell Sturgis, 728.
Art, American decorative, 243.
 American, National Expression in, by Will H. Low, 232.
 at Paris Exposition, 232.
 Japanese, History of, by John La Farge, 590.
 Roman, 602.
Asia, Central, as a possible trade centre, 131.
Associate, diploma of, as granted by University of Chicago, 644.
Astruc, Jean, 546.
Australia, increase in wealth of, 125.
 religion of natives of, 489.
Balzac, statue of, by Rodin, 171.
Bentley, Richard, 545.
Bessemer, Henry, 505.
Biology, *See* Development.
Boer War, 8.
Books Reviewed:
 Roman Art: Some of Its Principles and their Application to Early Christian Painting, by Franz Wickhoff, 602.
 Histoire de l'Art du Japon, 590.
 The Women of the Renaissance, by R. de Maulde la Clavière, 597.
 The Awakening of the East, by Pierre Leroy-Beaulieu, 721.
 World Politics at the End of the Nineteenth Century as Influenced by the Oriental Situation, by Paul S. Reinsch, 721.
 America's Economic Supremacy, by Brooks Adams, 722.
 An American Engineer in China, by William Barclay Parsons, 722.
 The Expansion of Trade in China, by T. H. Whitehead, 722.
 Overland to China, by Archibald R. Colquhoun, 723.
 China's Open Door: A Sketch of Chinese Life and History, by Rounseville Wildman, 723.
 China, the Long-Lived Empire, by Eliza Ruhamah Scidmore, 723.
 The Philippines: The War and the People: A Record of Personal Observations and Experiences, by Albert G. Robinson, 724.
 Impressions of South Africa, by James Bryce, 724.
 The History of Colonization from the Earliest Times to the Present Day, by Henry C. Morris, 725.
 Democracy and Empire; With Studies of Their Psychological, Economic, and Moral Foundations, by F. H. Giddings, 725.
 Catalogue of the Morse Collection of Japanese Art, by Edward S. Morse, 728.
 Oriental Rugs, by John Kimberly Mumford, 732.
 Border States, influence of, on civilization, 6.
 Boston Public Library, 57.
 Calorie, definition of, 586.
 Carbohydrates, 585.
 Cervantes, 541.
 Chest, diseases of, 49.
 Child-Study and Education, by James Sully, 314.

- China, effect of her development on world's wealth, 127.
See Expansion.
- Christianity in Russia, a veneer, 379.
- Civic Reform and Social Progress, by E. R. L. Gould, 344.
- Civil War, The, commanders in great battles of, 423.
- College, development of the American, 635.
- Commerce, *See* France.
- Consumption, use of X-Rays in, 51.
- Crime in England, 113.
- Criticism, development of German, 648; in North Germany, 671.
German, by Richard M. Meyer, 526, 648.
 history and development of, 526.
 in the Middle Ages, 535.
- Darwinism, *See* Nietzsche.
- Declaration of Rights of 1789, by André Lebon 673.
 compared with Declaration of Independence, 676.
- Decorative Sculpture, The, of Auguste Rodin, by Camille Mauclair, 166.
- Deities, national, 487.
- Descartes, 544.
- Development, The Problem of, by Thomas H. Morgan, 279.
- Diabetes mellitus, 691.
- Dietetics, The Principles of Modern, and their Importance in Therapeutics, by Carl von Noorden, 570, 679.
 history of, 571.
- Drama, *See* Antoine; Ibsen.
 nationalism and "provincialism," in the, 197 *et seq.*
- Durckheim, 135.
- Dutch in South Africa, 6.
- Earth's crust, subsidence of, 203.
- Earth's temperature, 206.
- Education, *See* Child-Study.
See Military Academy, U. S.
See University.
 effect on American woman; *See* American woman.
- Eliot, President, position of, on university education, 641.
- Embryology, development in, 274.
- England, local self government in, 105 *et seq.*
at the Close of the Nineteenth Century, by Emil Reich, 1.
 origin of power of, 1.
- England, rivalry with Germany, 4, 12.
 effect of Boer War upon, 11.
 contrasted with the Continent, 70.
 population, influences affecting increase of, 112.
- English People: Notes on National Characteristics*, by Bernard Bosanquet, 72.
- English woman, The, 88 *et seq.*
- Europe, topography of, by epochs, 216 *et seq.*
- Evolution. *See* Nietzsche.
 of animals, 275.
- Expansion, The Literature of*, by Charles A. Conant, 719.
- Fats, in food, 585.
- Febrile diseases, 699.
- Food, composition of, 574.
 value of different, 574, 681, 687.
- France, national wealth of, 254.
Situation of, in International Commerce, by André Lebon, 252.
 Declaration of Rights, 1789, 673.
- Geology, *See* Mountain Structure.
- Geosynclines, 203.
- German Criticism*, by Richard M. Meyer, 526, 648.
 impressions of America, 607.
 women, 610.
- Germany, compared with England, 12.
 as an ally of Italy, 15.
- Gilchrist, Percy, 505.
- Goethe, 662.
- Greek criticism, 532.
 thought, 446.
- Guyau, 134.
 philosophy of, 155.
 contrasted with Nietzsche, 155.
- Hall, James, 203.
- Herder, Johann Gottfried, 656.
- Heart, diseases of, 796.
- Herschell, Sir J., 203.
- Hip disease, 47.
- Hugo, Victor, his statue by Rodin, 170.
- Humboldt, Wilhelm von, 663.
- Hunt, Richard Morris, 237.
- Huntsman, Daniel, 503.
- Ibsen, The Real*, by William Archer, 182.
- Intellectual Development, Law of Historical*, by J. S. Stuart-Glennie, 444.
 stages, 455.

- International politics, *See* England.
 Inventors of steel processes, 503-5.
 Iron; early forges, 499.
 developments in treatment of, 499,
 et seq.
Iron and Steel Industry: an Introspect,
 by H. F. J. Porter, 495.
 Italy, her international position, 15.
 Japan, foreign commerce of, 126.
 Japanese Art, as illustrated by the
 Catalogue of the Morse Collec-
 tion of, 728.
Japanese Art, History of, by John La
 Farge, 590.
Japon, Histoire de l'Art du, reviewed,
 590.
 Kidneys, diseases of, 697.
 Knox, Samuel, his essay on system of
 liberal education, 647.
 Krupp, Alfred, 504.
 Labor, readjustment of, under modern
 conditions, 120.
 Le Conte, Joseph, 211.
 Lessing, 651.
 Libraries, state aid to, 59.
 number of, in U. S., 60.
 valuation of, in U. S., 60.
 Sunday-school, 62.
 children's, 62.
 Librarians, 65.
Library, The Public, in the United
 States: Some Recent Phases and
 Tendencies, by Herbert Putnam,
 55.
 Life, origin of, *See* Embryology.
 Liver, diseases of the, 695.
 Luther, Martin, 539.
 Manufactures in France, 267, *et seq.*
 Marillier, L., 470.
 Martin, Pierre and Emile, 505.
 Medicine, *See* X-Rays: Dietetics.
 Military Academy, U. S., 411.
 cost of, 415.
 military record of, 419.
 its morale, 427.
 curriculum, 430.
 Mongols in Russia, 389.
 Montaigne, 543.
 Mountain making, favorite modern
 theory of, 209.
 Structure and Its Origin, by James
 Geikie, 17, 202.
 early views on, 17.
 structure, table showing general re-
 sults of study of, 227.
 Municipal government, *See* Civic Re-
 form.
 Münsterberg, Hugo, on *Psychology*
 and Education, 317.
 Mushet, Robert, 505.
 Myths, object in, 482.
 National deities, 487.
 Neilson, Jas. Beaumont, 502.
 Neumayr, Professor, 207.
 New York Citizens' Union, 355.
Nietzsche and Darwinism, by Alfred
 Fouillée, 134.
 Nihilists, 406.
 Nourishment, excessive, 683.
 Nutrition, expressed in calories, 587.
 insufficient, 683.
 Obesity cure, 683.
Orient, The, American Interests in, by
 Chas. A. Conant, 117.
 Oriental Rugs, 732.
 Panslavists, 396.
 Paris Exposition, 232.
 Philippines, *See* Expansion.
 Philosophy. *See* Nietzsche.
 Plateaus, composition and origin of, 39.
 Platonism, 596.
 Pobédonostzef, M., 395.
 Politics in Russia, 386.
 Political morality, 348.
 Psychology, *See* Russian People.
 See Child-Study.
 of the English people, 70.
 of a people, definition of, 72.
 Public buildings in America compared
 with European, 246.
 artistic possibilities in, 250.
 Railway Alliance and Trade Districts
 in the United States, by Charles
 H. Hull, 703.
 freight rates, fall in, 711.
 Reade, T. Mellard, 206.
 Reformation, The, 537.
 Religion, germ of, 473.
 History and Method of the Science
 of, by F. B. Jevons, 464, 550.
 in Russia, 377.
Renaissance, Women of the: A Study
 in Feminism, by Maulde la
 Claviere, reviewed, 597.
 Reyer, Professor, 214.
 Rodin, Auguste:
 his life and works, 166.
 his ideas of sculpture, 172.

- Roentgen Rays, 42.
 Rolph, 135.
Roman Art, Native Vigor of, by Frank M. Day, 602.
 Romanticists, 667.
 Rurik, 386.
 Russia, evolution of her governmental system, 387.
 present conditions in, 403.
 religions of, 377.
 Russian architecture, 399.
 church, 378.
 intellect, 375.
 mind, evolution of, 393.
 nation, composition of, 361.
 physical characteristics of, 362.
People, The, a Psychological Study, by J. Novicow, 359.
 people, temperament of, 366: reputation for cruelty, 367.
 politics, 386.
 statesmen, 401.

 Sacrificial ceremonies, 484.
 Schools, control of and imperial aid to, in England, 107.
 Schopenhauer, 135.
Sculpture, The Decorative, of Auguste Rodin, by Camille Mauclair, 166.
 Shakespeare, 542, 667.
 Siemens, C. W., 505.
Slavery, Up from, by Harry Thurston Peck, 737.
 Slavs in Russia, 362.
 Social Progress, 344.
 Sociology, *See* Civic Reform.
 Sorby, Henry C., 506.
 Spencer, 137.
 Statistics of workingmen, membership in co-operative societies, etc., in England, 99.
 Steel, evolution of processes in making, 499, *et seq.*
 Steel Trust, 508.
 Stomach, diseases of the, 693.
 Studies, elective system in colleges, development of, *See* University.
 Stumpf, Professor, 331.
 Style, definition of, 650.
 Suess, Professor, 216.

 Tarde, 135.
 Teacher's profession, woman's share in, 628.
 Therapeutics, *See* Dietetics.
 Thomas Sidney, 505.
 Totem-sacrament, 488.
 Trade Districts in the United States, 703.
 Trade-unions in England, 87.
 membership of, 99.

University, The Encroachment of the American College on the Field of, by Simeon E. Baldwin, 634.

 Valleys, formation of, 21.
 Vegetarianism, 578.
Verdi, A Tribute to, by Pietro Mascagni, 434.
 his work described, 436.
 Vico, Gianbattista, 548.
 Vineyards of France, 256.
 Volcanoes, 24.

 War, localization of, 2.
 Washington, Booker T., his Autobiography reviewed, 377.
 Weismann's theory, 278.
West Point, by C. W. Larned, 411.
 See Military Academy.
 Winckelmann, Johann Joachim, 648.
Woman, The American, by Hugo Münsterberg, 607.
 in Germany, 610.
 of the Renaissance, by Benjamin W. Wells, 597.
 See under English.
 workers in England, 88.
 Working-people of England, advance in, 101.
 as pleasure seekers, 102.

X-Rays in Medicine, by F. H. Williams, 42.
 discovery of, 42.
 injuries caused by, 43.
 action of, 44.
 methods of using, 45.

 Young, Thomas, 506.

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